

# SEQUENCE LISTING

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<110> Hardiman, Gerard T.  
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Bazan, J. Fernando  
Kastelein, Robert A.  
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Liu, Yong-Jun

<120> RECEPTOR PROTEINS; RELATED REAGENTS AND METHODS

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Val Leu Asp Leu His Ser Asn Lys Ile Lys Ser Ile Pro Lys Gln Val				
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Glu Ala Gly Gly Asn Asn Phe Ile Cys Ser Cys Glu Phe Leu Ser Phe	
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Thr Gln Glu Gln Gln Ala Leu Ala Lys Val Leu Ile Asp Trp Pro Ala	
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Asp Val Arg Leu Ser Val Ser Glu Cys His Arg Thr Ala Leu Val Ser	
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Cys His Arg Phe His Gly Leu Trp Tyr Met Lys Met Met Trp Ala Trp	
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Glu Leu Tyr Ile Ser Arg Asn Lys Leu Met Thr Leu Pro Asp Ala Ser						
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Leu Leu Pro Met Leu Leu Val Leu Lys Ile Ser Arg Asn Ala Ile Thr						
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Gly Met Cys Cys Ala Leu Phe Leu Leu Ile Leu Leu Thr Gly Val Leu						
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Cys His Arg Phe His Gly Leu Trp Tyr Met Lys Met Met Trp Ala Trp						
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Tyr Asp Ala Phe Val Ser Tyr Ser Glu Arg Asp Ala Tyr Trp Val Glu						
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						650

Cys Leu His Lys Arg Asp Phe Ile Pro Gly Lys Trp Ile Ile Asp Asn  
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Asp	Val	Gly	Phe	Asn	Thr	Ile	Ser	Lys	Leu	Glu	Pro	Glu	Leu	Cys	Gln		
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Lys	Leu	Pro	Met	Leu	Lys	Val	Leu	Asn	Leu	Gln	His	Asn	Glu	Leu	Ser		
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Gln	Leu	Ser	Asp	Lys	Thr	Phe	Ala	Phe	Cys	Thr	Asn	Leu	Thr	Glu	Leu		
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His	Leu	Met	Ser	Asn	Ser	Ile	Gln	Lys	Ile	Lys	Asn	Asn	Pro	Phe	Val		
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Ile	Lys	Glu	Phe	Ser	Pro	Gly	Cys	Phe	His	Ala	Ile	Gly	Arg	Leu	Phe		
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Trp	Thr	Asn	Leu	Thr	Met	Leu	Asp	Leu	Ser	Tyr	Asn	Asn	Leu	Asn	Val		
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Tyr	Asn	Lys	Tyr	Leu	Gln	Leu	Thr	Arg	Asn	Ser	Phe	Ala	Leu	Val	Pro	
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Val Gln Lys Glu Arg Ile Gly Ala Phe Arg His Lys Leu Gln Val Ala	
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Glu Val Ala Asp Cys Ser His Leu Lys Leu Thr Gln Val Pro Asp Asp	
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30 35 40	
Arg Leu Pro Ala Ala Asn Phe Thr Arg Tyr Ser Gln Leu Thr Ser Leu	
45 50 55	
Asp Val Gly Phe Asn Thr Ile Ser Lys Leu Glu Pro Glu Leu Cys Gln	

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65

70

75

Lys Leu Pro Met Leu Lys Val Leu Asn Leu Gln His Asn Glu Leu Ser  
80 85 90

Gln Leu Ser Asp Lys Thr Phe Ala Phe Cys Thr Asn Leu Thr Glu Leu  
95 100 105

His Leu Met Ser Asn Ser Ile Gln Lys Ile Lys Asn Asn Pro Phe Val  
110 115 120

Lys Gln Lys Asn Leu Ile Thr Leu Asp Leu Ser His Asn Gly Leu Ser  
125 130 135

Ser Thr Lys Leu Gly Thr Gln Val Gln Leu Glu Asn Leu Gln Glu Leu  
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Leu Leu Ser Asn Asn Lys Ile Gln Ala Leu Lys Ser Glu Glu Leu Asp  
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Ile Phe Ala Asn Ser Ser Leu Lys Lys Leu Glu Leu Ser Ser Asn Gln  
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Ile Lys Glu Phe Ser Pro Gly Cys Phe His Ala Ile Gly Arg Leu Phe  
190 195 200

Gly Leu Phe Leu Asn Asn Val Gln Leu Gly Pro Ser Leu Thr Glu Lys  
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Leu Cys Leu Glu Leu Ala Asn Thr Ser Ile Arg Asn Leu Ser Leu Ser  
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Asn Ser Gln Leu Ser Thr Thr Ser Asn Thr Thr Phe Leu Gly Leu Lys  
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Trp Thr Asn Leu Thr Met Leu Asp Leu Ser Tyr Asn Asn Leu Asn Val  
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Val Gly Asn Asp Ser Phe Ala Trp Leu Pro Gln Leu Glu Tyr Phe Phe  
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Leu Glu Tyr Asn Asn Ile Gln His Leu Phe Ser His Ser Leu His Gly  
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Leu Phe Asn Val Arg Tyr Leu Asn Leu Lys Arg Ser Phe Thr Lys Gln  
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Ser Ile Ser Leu Ala Ser Leu Pro Lys Ile Asp Asp Phe Ser Phe Gln  
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Trp Leu Lys Cys Leu Glu His Leu Asn Met Glu Asp Asn Asp Ile Pro  
335 340 345

Gly Ile Lys Ser Asn Met Phe Thr Gly Leu Ile Asn Leu Lys Tyr Leu  
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Ser Leu Ser Asn Ser Phe Thr Ser Leu Arg Thr Leu Thr Asn Glu Thr  
365 370 375

Phe Val Ser Leu Ala His Ser Pro Leu His Ile Leu Asn Leu Thr Lys  
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Asn Lys Ile Ser Lys Ile Glu Ser Asp Ala Phe Ser Trp Leu Gly His  
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Leu Glu Val Leu Asp Leu Gly Leu Asn Glu Ile Gly Gln Glu Leu Thr  
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Gly Gln Glu Trp Arg Gly Leu Glu Asn Ile Phe Glu Ile Tyr Leu Ser  
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Tyr Asn Lys Tyr Leu Gln Leu Thr Arg Asn Ser Phe Ala Leu Val Pro  
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Ser Leu Gln Arg Leu Met Leu Arg Arg Val Ala Leu Lys Asn Val Asp  
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Ser Ser Pro Ser Pro Phe Gln Pro Leu Arg Asn Leu Thr Ile Leu Asp  
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Leu Ser Asn Asn Asn Ile Ala Asn Ile Asn Asp Asp Met Leu Glu Gly  
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Leu Glu Lys Leu Glu Ile Leu Asp Leu Gln His Asn Asn Leu Ala Arg  
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Leu Trp Lys His Ala Asn Pro Gly Gly Pro Ile Tyr Phe Leu Lys Gly  
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Leu Ser His Leu His Ile Leu Asn Leu Glu Ser Asn Gly Phe Asp Glu  
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Ile Pro Val Glu Val Phe Lys Asp Leu Phe Glu Leu Lys Ile Ile Asp  
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Leu Gly Leu Asn Asn Leu Asn Thr Leu Pro Ala Ser Val Phe Asn Asn  
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Gln Val Ser Leu Lys Ser Leu Asn Leu Gln Lys Asn Leu Ile Thr Ser  
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Val Glu Lys Lys Val Phe Gly Pro Ala Phe Arg Asn Leu Thr Glu Leu  
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Asp Met Arg Phe Asn Pro Phe Asp Cys Thr Cys Glu Ser Ile Ala Trp  
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Phe Val Asn Trp Ile Asn Glu Thr His Thr Asn Ile Pro Glu Leu Ser  
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Ser His Tyr Leu Cys Asn Thr Pro Pro His Tyr His Gly Phe Pro Val  
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Arg Leu Phe Asp Thr Ser Ser Cys Lys Asp Ser Ala Pro Phe Glu Leu  
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Phe Phe Met Ile Asn Thr Ser Ile Leu Leu Ile Phe Ile Phe Ile Val  
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Leu Leu Ile His Phe Glu Gly Trp Arg Ile Ser Phe Tyr Trp Asn Val  
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Ser Val His Arg Val Leu Gly Phe Lys Glu Ile Asp Arg Gln Thr Glu  
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Gln Phe Glu Tyr Ala Ala Tyr Ile Ile His Ala Tyr Lys Asp Lys Asp  
735 740 745

Trp Val Trp Glu His Phe Ser Ser Met Glu Lys Glu Asp Gln Ser Leu  
750 755 760

Lys Phe Cys Leu Glu Glu Arg Asp Phe Glu Ala Gly Val Phe Glu Leu  
765 770 775

Glu Ala Ile Val Asn Ser Ile Lys Arg Ser Arg Lys Ile Ile Phe Val  
780 785 790 795

Ile Thr His His Leu Leu Lys Asp Pro Leu Cys Lys Arg Phe Lys Val  
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His His Ala Val Gln Gln Ala Ile Glu Gln Asn Leu Asp Ser Ile Ile  
815 820 825

Leu Val Phe Leu Glu Glu Ile Pro Asp Tyr Lys Leu Asn His Ala Leu  
830 835 840

Cys Leu Arg Arg Gly Met Phe Lys Ser His Cys Ile Leu Asn Trp Pro  
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Lys Asn Leu Asp Leu Ser Phe Asn Pro Leu Arg His Leu Gly Ser Tyr  
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Ser Phe Phe Ser Phe Pro Glu Leu Gln Val Leu Asp Leu Ser Arg Cys  
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Glu Ile Gln Thr Ile Glu Asp Gly Ala Tyr Gln Ser Leu Ser His Leu  
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Ser Thr Leu Ile Leu Thr Gly Asn Pro Ile Gln Ser Leu Ala Leu Gly  
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gcc ttt tct gga cta tca agt tta cag aag ctg gtg gct gtg gag aca 288  
Ala Phe Ser Gly Leu Ser Ser Leu Gln Lys Leu Val Ala Val Glu Thr  
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Lys	Glu		Leu	Asn	Val	Ala	His	Asn	Leu	Ile	Gln	Ser	Phe	Lys	Leu	Pro	
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Glu	Tyr	Phe	Ser	Asn	Leu	Thr	Asn	Leu	Glu	His	Leu	Asp	Leu	Ser	Ser		
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Phe	Ile	Gln	Pro	Gly	Ala	Phe	Lys	Glu	Ile	Arg	Leu	His	Lys	Leu	Thr		
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Leu	Arg	Asn	Asn	Phe	Asp	Ser	Leu	Asn	Val	Met	Lys	Thr	Cys	Ile	Gln		
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Asn	Glu	Gly	Asn	Leu	Glu	Lys	Phe	Asp	Lys	Ser	Ala	Leu	Glu	Gly	Leu		
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tgc	aat	ttg	acc	att	gaa	gaa	ttc	cga	tta	gca	tac	tta	gac	tac	tac	768	
Cys	Asn	Leu	Thr	Ile	Glu	Glu	Phe	Arg	Leu	Ala	Tyr	Leu	Asp	Tyr	Tyr		
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Leu	Asp	Asp	Ile	Ile	Asp	Leu	Phe	Asn	Cys	Leu	Thr	Asn	Val	Ser	Ser		
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ttt	tcc	ctg	gtg	agt	gtg	act	att	gaa	agg	gta	aaa	gac	ttt	tct	tat	864	
Phe	Ser	Leu	Val	Ser	Val	Thr	Ile	Glu	Arg	Val	Lys	Asp	Phe	Ser	Tyr		
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Asn	Phe	Gly	Trp	Gln	His	Leu	Glu	Leu	Val	Asn	Cys	Lys	Phe	Gly	Gln		
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Phe	Pro	Thr	Leu	Lys	Leu	Lys	Ser	Leu	Lys	Arg	Leu	Thr	Phe	Thr	Ser		
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aac	aaa	ggg	ggg	aat	gct	ttt	tca	gaa	gtt	gat	cta	cca	agc	ctt	gag	1008	
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Ser	Val	Phe	Leu	Ser	Leu	Arg	Asn	Leu	Ile	Tyr	Leu	Asp	Ile	Ser	His															
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Thr	His	Thr	Arg	Val	Ala	Phe	Asn	Gly	Ile	Phe	Asn	Gly	Leu	Ser	Ser															
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ctc	gaa	gtc	ttg	aaa	atg	gct	ggc	aat	tct	ttc	cag	gaa	aac	ttc	ctt		1344													
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Gln	Cys	Gln	Leu	Glu	Gln	Leu	Ser	Pro	Thr	Ala	Phe	Asn	Ser	Leu	Ser															
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Ser	Leu	Gln	Val	Leu	Asn	Met	Ser	His	Asn	Asn	Phe	Phe	Ser	Leu	Asp															
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acg	ttt	cct	tat	aag	tgt	ctg	aac	tcc	ctc	cag	gtt	ctt	gat	tac	agt		1536													
Thr	Phe	Pro	Tyr	Lys	Cys	Leu	Asn	Ser	Leu	Gln	Val	Leu	Asp	Tyr	Ser															
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ctc	aat	cac	ata	atg	act	tcc	aaa	aaa	cag	gaa	cta	cag	cat	ttt	cca		1584													
Leu	Asn	His	Ile	Met	Thr	Ser	Lys	Lys	Gln	Glu	Leu	Gln	His	Phe	Pro															
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agt	agt	cta	gct	ttc	tta	aat	ctt	act	cag	aat	gac	ttt	gct	tgt	act		1632													
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Cys	Glu	His	Gln	Ser	Phe	Leu	Gln	Trp	Ile	Lys	Asp	Gln	Arg	Gln	Leu															
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Leu	Val	Glu	Val	Glu	Arg	Met	Glu	Cys	Ala	Thr	Pro	Ser	Asp	Lys	Gln															
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ata aag tat ggt aga ggt gaa aac atc tat gat gcc ttt gtt atc tac Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr Asp Ala Phe Val Ile Tyr 625 630 635 640	1920
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 Ser Phe Phe Ser Phe Pro Glu Leu Gln Val Leu Asp Leu Ser Arg Cys  
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 Glu Ile Gln Thr Ile Glu Asp Gly Ala Tyr Gln Ser Leu Ser His Leu  
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 Ser Thr Leu Ile Leu Thr Gly Asn Pro Ile Gln Ser Leu Ala Leu Gly  
 65 70 75 80  
 Ala Phe Ser Gly Leu Ser Ser Leu Gln Lys Leu Val Ala Val Glu Thr  
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 Lys Glu Leu Asn Val Ala His Asn Leu Ile Gln Ser Phe Lys Leu Pro  
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 Phe Ile Gln Pro Gly Ala Phe Lys Glu Ile Arg Leu His Lys Leu Thr  
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 Gly Leu Ala Gly Leu Glu Val His Arg Leu Val Leu Gly Glu Phe Arg  
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 Asn Glu Gly Asn Leu Glu Lys Phe Asp Lys Ser Ala Leu Glu Gly Leu  
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Glu	His	Leu	Asp	Phe	Gln	His	Ser	Asn	Leu	Lys	Gln	Met	Ser	Glu	Phe		
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Thr	His	Thr	Arg	Val	Ala	Phe	Asn	Gly	Ile	Phe	Asn	Gly	Leu	Ser	Ser		
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Pro	Asp	Ile	Phe	Thr	Glu	Leu	Arg	Asn	Leu	Thr	Phe	Leu	Asp	Leu	Ser		
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465					470					475					480		
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Thr Phe Pro Tyr Lys Cys Leu Asn Ser Leu Gln Val Leu Asp Tyr Ser  
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Leu Asn His Ile Met Thr Ser Lys Lys Gln Glu Leu Gln His Phe Pro  
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Ser Ser Leu Ala Phe Leu Asn Leu Thr Gln Asn Asp Phe Ala Cys Thr  
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Cys Glu His Gln Ser Phe Leu Gln Trp Ile Lys Asp Gln Arg Gln Leu  
545 550 555 560

Leu Val Glu Val Glu Arg Met Glu Cys Ala Thr Pro Ser Asp Lys Gln  
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Gly Met Pro Val Leu Ser Leu Asn Ile Thr Cys Gln Met Asn Lys Thr  
580 585 590

Ile Ile Gly Val Ser Val Leu Ser Val Leu Val Val Ser Val Val Ala  
595 600 605

Val Leu Val Tyr Lys Phe Tyr Phe His Leu Met Leu Leu Ala Gly Cys  
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Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr Asp Ala Phe Val Ile Tyr  
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Ser Ser Gln Asp Glu Asp Trp Val Arg Asn Glu Leu Val Lys Asn Leu  
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Glu Glu Gly Val Pro Pro Phe Gln Leu Cys Leu His Tyr Arg Asp Phe  
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Ile Pro Gly Val Ala Ile Ala Ala Asn Ile Ile His Glu Gly Phe His  
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Lys Ser Arg Lys Val Ile Val Val Val Ser Gln His Phe Ile Gln Ser  
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Arg Trp Cys Ile Phe Glu Tyr Glu Ile Ala Gln Thr Trp Gln Phe Leu  
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Ser Ser Arg Ala Gly Ile Ile Phe Ile Val Leu Gln Lys Val Glu Lys  
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Thr Leu Leu Arg Gln Gln Val Glu Leu Tyr Arg Leu Leu Ser Arg Asn  
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Thr Tyr Leu Glu Trp Glu Asp Ser Val Leu Gly Arg His Ile Phe Trp  
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Thr Ala Leu Arg Gly Leu Ser Leu Asn Ser Asn Arg Leu Thr Val Leu  
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Ser His Asn Asp Leu Pro Ala Asn Leu Glu Ile Leu Asp Ile Ser Arg  
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Phe Ile Asn Trp Leu Asn His Thr Asn Val Thr Ile Ala Gly Pro Pro  
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Ala Asp Ile Tyr Cys Val Tyr Pro Asp Ser Phe Ser Gly Val Ser Leu  
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Leu Met Thr Ile Leu Thr Val Thr Lys Phe Arg Gly Phe Cys Phe Ile	
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Thr Glu Pro Asp Met Tyr Lys Tyr Asp Ala Tyr Leu Cys Phe Ser Ser	
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Lys Asp Phe Thr Trp Val Gln Asn Ala Leu Leu Lys His Leu Asp Thr	
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Gln Tyr Ser Asp Gln Asn Arg Phe Asn Leu Cys Phe Glu Glu Arg Asp	
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Asp Leu Asn Ser Ala Leu Ile Met Val Val Val Gly Ser Leu Ser Gln	
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Ser His Asn Asp Leu Pro Ala Asn Leu Glu Ile Leu Asp Ile Ser Arg  
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Asn Gln Leu Leu Ala Pro Asn Pro Asp Val Phe Val Ser Leu Ser Val  
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Leu Asp Ile Thr His Asn Lys Phe Ile Cys Glu Cys Glu Leu Ser Thr  
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Phe Ile Asn Trp Leu Asn His Thr Asn Val Thr Ile Ala Gly Pro Pro  
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Ala Asp Ile Tyr Cys Val Tyr Pro Asp Ser Phe Ser Gly Val Ser Leu  
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Phe Ser Leu Ser Thr Glu Gly Cys Asp Glu Glu Glu Val Leu Lys Ser  
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Leu Lys Phe Ser Leu Phe Ile Val Cys Thr Val Thr Leu Thr Leu Phe  
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Leu Met Thr Ile Leu Thr Val Thr Lys Phe Arg Gly Phe Cys Phe Ile  
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Cys Tyr Lys Thr Ala Gln Arg Leu Val Phe Lys Asp His Pro Gln Gly  
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Thr Glu Pro Asp Met Tyr Lys Tyr Asp Ala Tyr Leu Cys Phe Ser Ser  
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Lys Asp Phe Thr Trp Val Gln Asn Ala Leu Leu Lys His Leu Asp Thr  
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Gln Tyr Ser Asp Gln Asn Arg Phe Asn Leu Cys Phe Glu Glu Arg Asp  
 225 230 235 240

Phe Val Pro Gly Glu Asn Arg Ile Ala Asn Ile Gln Asp Ala Ile Trp  
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Asn Ser Arg Lys Ile Val Cys Leu Val Ser Arg His Phe Leu Arg Asp  
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Asp Leu Asn Ser Ala Leu Ile Met Val Val Val Gly Ser Leu Ser Gln  
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Tyr Gln Leu Met Lys His Gln Ser Ile Arg Gly Phe Val Gln Lys Gln  
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Gln Tyr Leu Arg Trp Pro Glu Asp Leu Gln Asp Val Gly Trp Phe Leu  
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Phe	His	Arg	Leu	Asp	His	Leu	Val	Glu	Ile	Asp	Phe	Arg	Cys	Asn	Cys		
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Val	Pro	Ile	Pro	Leu	Gly	Ser	Lys	Asn	Asn	Met	Cys	Ile	Lys	Arg	Leu		
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Gln	Ile	Lys	Pro	Arg	Ser	Phe	Ser	Gly	Leu	Thr	Tyr	Leu	Lys	Ser	Leu		
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Tyr	Leu	Asp	Gly	Asn	Gln	Leu	Leu	Glu	Ile	Pro	Gln	Gly	Leu	Pro	Pro		
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Gln	Asn	Cys	Tyr	Tyr	Arg	Asn	Pro	Cys	Tyr	Val	Ser	Tyr	Ser	Ile	Glu		
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Pro	Arg	Cys	Tyr	Asn	Ala	Pro	Phe	Pro	Cys	Ala	Pro	Cys	Lys	Asn	Asn		

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Lys	Gly	Gln	Ser	Val	Ile	Ser	Leu	Asp	Leu	Tyr	Thr	Cys	Glu	Leu	Asp	
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Ile	Ser	Pro	Asp	Cys	Cys	Tyr	Asp	Ala	Phe	Ile	Val	Tyr	Asp	Thr	Lys	
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Asp	Pro	Ala	Val	Thr	Glu	Trp	Val	Leu	Ala	Glu	Leu	Val	Ala	Lys	Leu	
			900					905					910			
gaa	gac	cca	aga	gag	aaa	cat	ttt	aat	tta	tgt	ctc	gag	gaa	agg	gac	2784
Glu	Asp	Pro	Arg	Glu	Lys	His	Phe	Asn	Leu	Cys	Leu	Glu	Glu	Arg	Asp	
		915					920					925				
tgg	tta	cca	ggg	cag	cca	gtt	ctg	gaa	aac	ctt	tcc	cag	agc	ata	cag	2832
Trp	Leu	Pro	Gly	Gln	Pro	Val	Leu	Glu	Asn	Leu	Ser	Gln	Ser	Ile	Gln	
		930				935						940				
ctt	agc	aaa	aag	aca	gtg	ttt	gtg	atg	aca	gac	aag	tat	gca	aag	act	2880
Leu	Ser	Lys	Lys	Thr	Val	Phe	Val	Met	Thr	Asp	Lys	Tyr	Ala	Lys	Thr	
		945			950					955					960	
gaa	aat	ttt	aag	ata	gca	ttt	tac	ttg	tcc	cat	cag	agg	ctc	atg	gat	2928
Glu	Asn	Phe	Lys	Ile	Ala	Phe	Tyr	Leu	Ser	His	Gln	Arg	Leu	Met	Asp	
				965					970					975		
gaa	aaa	gtt	gat	gtg	att	atc	ttg	ata	ttt	ctt	gag	aag	ccc	ttt	cag	2976
Glu	Lys	Val	Asp	Val	Ile	Ile	Leu	Ile	Phe	Leu	Glu	Lys	Pro	Phe	Gln	
			980					985					990			
aag	tcc	aag	ttc	ctc	cag	ctc	cgg	aaa	agg	ctc	tgt	ggg	agt	tct	gtc	3024

Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg Leu Cys Gly Ser Ser Val  
 995 1000 1005  
 ctt gag tgg cca aca aac ccg caa gct cac cca tac ttc tgg cag 3069  
 Leu Glu Trp Pro Thr Asn Pro Gln Ala His Pro Tyr Phe Trp Gln  
 1010 1015 1020  
 tgt cta aag aac gcc ctg gcc aca gac aat cat gtg gcc tat agt 3114  
 Cys Leu Lys Asn Ala Leu Ala Thr Asp Asn His Val Ala Tyr Ser  
 1025 1030 1035  
 cag gtg ttc aag gaa acg gtc tag 3138  
 Gln Val Phe Lys Glu Thr Val  
 1040 1045

<210> 12  
 <211> 1045  
 <212> PRT  
 <213> Homo sapiens

<400> 12

Met Trp Thr Leu Lys Arg Leu Ile Leu Ile Leu Phe Asn Ile Ile Leu  
 1 5 10 15

Ile Ser Lys Leu Leu Gly Ala Arg Trp Phe Pro Lys Thr Leu Pro Cys  
 20 25 30

Asp Val Thr Leu Asp Val Pro Lys Asn His Val Ile Val Asp Cys Thr  
 35 40 45

Asp Lys His Leu Thr Glu Ile Pro Gly Gly Ile Pro Thr Asn Thr Thr  
 50 55 60

Asn Leu Thr Leu Thr Ile Asn His Ile Pro Asp Ile Ser Pro Ala Ser  
 65 70 75 80

Phe His Arg Leu Asp His Leu Val Glu Ile Asp Phe Arg Cys Asn Cys  
 85 90 95

Val Pro Ile Pro Leu Gly Ser Lys Asn Asn Met Cys Ile Lys Arg Leu  
 100 105 110

Gln Ile Lys Pro Arg Ser Phe Ser Gly Leu Thr Tyr Leu Lys Ser Leu  
 115 120 125

Tyr Leu Asp Gly Asn Gln Leu Leu Glu Ile Pro Gln Gly Leu Pro Pro  
 130 135 140

Ser Leu Gln Leu Leu Ser Leu Glu Ala Asn Asn Ile Phe Ser Ile Arg  
 145 150 155 160

Lys Glu Asn Leu Thr Glu Leu Ala Asn Ile Glu Ile Leu Tyr Leu Gly  
165 170 175

Gln Asn Cys Tyr Tyr Arg Asn Pro Cys Tyr Val Ser Tyr Ser Ile Glu  
180 185 190

Lys Asp Ala Phe Leu Asn Leu Thr Lys Leu Lys Val Leu Ser Leu Lys  
195 200 205

Asp Asn Asn Val Thr Ala Val Pro Thr Val Leu Pro Ser Thr Leu Thr  
210 215 220

Glu Leu Tyr Leu Tyr Asn Asn Met Ile Ala Lys Ile Gln Glu Asp Asp  
225 230 235 240

Phe Asn Asn Leu Asn Gln Leu Gln Ile Leu Asp Leu Ser Gly Asn Cys  
245 250 255

Pro Arg Cys Tyr Asn Ala Pro Phe Pro Cys Ala Pro Cys Lys Asn Asn  
260 265 270

Ser Pro Leu Gln Ile Pro Val Asn Ala Phe Asp Ala Leu Thr Glu Leu  
275 280 285

Lys Val Leu Arg Leu His Ser Asn Ser Leu Gln His Val Pro Pro Arg  
290 295 300

Trp Phe Lys Asn Ile Asn Lys Leu Gln Glu Leu Asp Leu Ser Gln Asn  
305 310 315 320

Phe Leu Ala Lys Glu Ile Gly Asp Ala Lys Phe Leu His Phe Leu Pro  
325 330 335

Ser Leu Ile Gln Leu Asp Leu Ser Phe Asn Phe Glu Leu Gln Val Tyr  
340 345 350

Arg Ala Ser Met Asn Leu Ser Gln Ala Phe Ser Ser Leu Lys Ser Leu  
355 360 365

Lys Ile Leu Arg Ile Arg Gly Tyr Val Phe Lys Glu Leu Lys Ser Phe  
370 375 380

Asn Leu Ser Pro Leu His Asn Leu Gln Asn Leu Glu Val Leu Asp Leu  
385 390 395 400

Gly Thr Asn Phe Ile Lys Ile Ala Asn Leu Ser Met Phe Lys Gln Phe  
 405 410 415  
 Lys Arg Leu Lys Val Ile Asp Leu Ser Val Asn Lys Ile Ser Pro Ser  
 420 425 430  
 Gly Asp Ser Ser Glu Val Gly Phe Cys Ser Asn Ala Arg Thr Ser Val  
 435 440 445  
 Glu Ser Tyr Glu Pro Gln Val Leu Glu Gln Leu His Tyr Phe Arg Tyr  
 450 455 460  
 Asp Lys Tyr Ala Arg Ser Cys Arg Phe Lys Asn Lys Glu Ala Ser Phe  
 465 470 475 480  
 Met Ser Val Asn Glu Ser Cys Tyr Lys Tyr Gly Gln Thr Leu Asp Leu  
 485 490 495  
 Ser Lys Asn Ser Ile Phe Phe Val Lys Ser Ser Asp Phe Gln His Leu  
 500 505 510  
 Ser Phe Leu Lys Cys Leu Asn Leu Ser Gly Asn Leu Ile Ser Gln Thr  
 515 520 525  
 Leu Asn Gly Ser Glu Phe Gln Pro Leu Ala Glu Leu Arg Tyr Leu Asp  
 530 535 540  
 Phe Ser Asn Asn Arg Leu Asp Leu Leu His Ser Thr Ala Phe Glu Glu  
 545 550 555 560  
 Leu His Lys Leu Glu Val Leu Asp Ile Ser Ser Asn Ser His Tyr Phe  
 565 570 575  
 Gln Ser Glu Gly Ile Thr His Met Leu Asn Phe Thr Lys Asn Leu Lys  
 580 585 590  
 Val Leu Gln Lys Leu Met Met Asn Asp Asn Asp Ile Ser Ser Ser Thr  
 595 600 605  
 Ser Arg Thr Met Glu Ser Glu Ser Leu Arg Thr Leu Glu Phe Arg Gly  
 610 615 620  
 Asn His Leu Asp Val Leu Trp Arg Glu Gly Asp Asn Arg Tyr Leu Gln  
 625 630 635 640



Leu Phe Lys Asn Leu Leu Lys Leu Glu Glu Leu Asp Ile Ser Lys Asn  
645 650 655

Ser Leu Ser Phe Leu Pro Ser Gly Val Phe Asp Gly Met Pro Pro Asn  
660 665 670

Leu Lys Asn Leu Ser Leu Ala Lys Asn Gly Leu Lys Ser Phe Ser Trp  
675 680 685

Lys Lys Leu Gln Cys Leu Lys Asn Leu Glu Thr Leu Asp Leu Ser His  
690 695 700

Asn Gln Leu Thr Thr Val Pro Glu Arg Leu Ser Asn Cys Ser Arg Ser  
705 710 715 720

Leu Lys Asn Leu Ile Leu Lys Asn Asn Gln Ile Arg Ser Leu Thr Lys  
725 730 735

Tyr Phe Leu Gln Asp Ala Phe Gln Leu Arg Tyr Leu Asp Leu Ser Ser  
740 745 750

Asn Lys Ile Gln Met Ile Gln Lys Thr Ser Phe Pro Glu Asn Val Leu  
755 760 765

Asn Asn Leu Lys Met Leu Leu Leu His His Asn Arg Phe Leu Cys Thr  
770 775 780

Cys Asp Ala Val Trp Phe Val Trp Trp Val Asn His Thr Glu Val Thr  
785 790 795 800

Ile Pro Tyr Leu Ala Thr Asp Val Thr Cys Val Gly Pro Gly Ala His  
805 810 815

Lys Gly Gln Ser Val Ile Ser Leu Asp Leu Tyr Thr Cys Glu Leu Asp  
820 825 830

Leu Thr Asn Leu Ile Leu Phe Ser Leu Ser Ile Ser Val Ser Leu Phe  
835 840 845

Leu Met Val Met Met Thr Ala Ser His Leu Tyr Phe Trp Asp Val Trp  
850 855 860

Tyr Ile Tyr His Phe Cys Lys Ala Lys Ile Lys Gly Tyr Gln Arg Leu  
865 870 875 880

Ile Ser Pro Asp Cys Cys Tyr Asp Ala Phe Ile Val Tyr Asp Thr Lys

885	890	895
Asp Pro Ala Val Thr Glu Trp Val Leu Ala Glu Leu Val Ala Lys Leu		
900	905	910
Glu Asp Pro Arg Glu Lys His Phe Asn Leu Cys Leu Glu Glu Arg Asp		
915	920	925
Trp Leu Pro Gly Gln Pro Val Leu Glu Asn Leu Ser Gln Ser Ile Gln		
930	935	940
Leu Ser Lys Lys Thr Val Phe Val Met Thr Asp Lys Tyr Ala Lys Thr		
945	950	955
Glu Asn Phe Lys Ile Ala Phe Tyr Leu Ser His Gln Arg Leu Met Asp		
965	970	975
Glu Lys Val Asp Val Ile Ile Leu Ile Phe Leu Glu Lys Pro Phe Gln		
980	985	990
Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg Leu Cys Gly Ser Ser Val		
995	1000	1005
Leu Glu Trp Pro Thr Asn Pro Gln Ala His Pro Tyr Phe Trp Gln		
1010	1015	1020
Cys Leu Lys Asn Ala Leu Ala Thr Asp Asn His Val Ala Tyr Ser		
1025	1030	1035
Gln Val Phe Lys Glu Thr Val		
1040	1045	

<210> 13  
 <211> 180  
 <212> DNA  
 <213> Mus musculus

<220>  
 <221> CDS  
 <222> (1)..(177)  
 <223>

<400> 13	
ctt gga aaa cct ctt cag aag tct aag ttt ctt cag ctc agg aag aga	48
Leu Gly Lys Pro Leu Gln Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg	
1 5 10 15	
ctc tgc agg agc tct gtc ctt gag tgg cct gca aat cca cag gct cac	96
Leu Cys Arg Ser Ser Val Leu Glu Trp Pro Ala Asn Pro Gln Ala His	

	20	25	30	
cca tac ttc tgg cag tgc ctg aaa aat gcc ctg acc aca gac aat cat				144
Pro Tyr Phe Trp Gln Cys Leu Lys Asn Ala Leu Thr Thr Asp Asn His				
	35	40	45	

gtg gct tat agt caa atg ttc aag gaa aca gtc tag				180
Val Ala Tyr Ser Gln Met Phe Lys Glu Thr Val				
	50	55		

<210> 14  
 <211> 59  
 <212> PRT  
 <213> Mus musculus

<400> 14

Leu Gly Lys Pro Leu Gln Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg				
1	5	10	15	

Leu Cys Arg Ser Ser Val Leu Glu Trp Pro Ala Asn Pro Gln Ala His				
	20	25	30	

Pro Tyr Phe Trp Gln Cys Leu Lys Asn Ala Leu Thr Thr Asp Asn His				
	35	40	45	

Val Ala Tyr Ser Gln Met Phe Lys Glu Thr Val			
	50	55	

<210> 15  
 <211> 990  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (2)..(988)  
 <223>

<400> 15				
g aat tcc aga ctt ata aac ttg aaa aat ctc tat ttg gcc tgg aac tgc				49
Asn Ser Arg Leu Ile Asn Leu Lys Asn Leu Tyr Leu Ala Trp Asn Cys				
1	5	10	15	

tat ttt aac aaa gtt tgc gag aaa act aac ata gaa gat gga gta ttt				97
Tyr Phe Asn Lys Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe				
	20	25	30	

gaa acg ctg aca aat ttg gag ttg cta tca cta tct ttc aat tct ctt				145
Glu Thr Leu Thr Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu				
	35	40	45	

tca cat gtg cca ccc aaa ctg cca agc tcc cta cgc aaa ctt ttt ctg				193
Ser His Val Pro Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu				
	50	55	60	

agc aac acc cag atc aaa tac att agt gaa gaa gat ttc aag gga ttg Ser Asn Thr Gln Ile Lys Tyr Ile Ser Glu Glu Asp Phe Lys Gly Leu 65 70 75 80	241
ata aat tta aca tta cta gat tta agc ggg aac tgt ccg agg tgc ttc Ile Asn Leu Thr Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe 85 90 95	289
aat gcc cca ttt cca tgc gtg cct tgt gat ggt ggt gct tca att aat Asn Ala Pro Phe Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn 100 105 110	337
ata gat cgt ttt gct ttt caa aac ttg acc caa ctt cga tac cta aac Ile Asp Arg Phe Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn 115 120 125	385
ctc tct agc act tcc ctc agg aag att aat gct gcc tgg ttt aaa aat Leu Ser Ser Thr Ser Leu Arg Lys Ile Asn Ala Ala Trp Phe Lys Asn 130 135 140	433
atg cct cat ctg aag gtg ctg gat ctt gaa ttc aac tat tta gtg gga Met Pro His Leu Lys Val Leu Asp Leu Glu Phe Asn Tyr Leu Val Gly 145 150 155 160	481
gaa ata gcc tct ggg gca ttt tta acg atg ctg ccc cgc tta gaa ata Glu Ile Ala Ser Gly Ala Phe Leu Thr Met Leu Pro Arg Leu Glu Ile 165 170 175	529
ctt gac ttg tct ttt aac tat ata aag ggg agt tat cca cag cat att Leu Asp Leu Ser Phe Asn Tyr Ile Lys Gly Ser Tyr Pro Gln His Ile 180 185 190	577
aat att tcc aga aac ttc tct aaa ctt ttg tct cta cgg gca ttg cat Asn Ile Ser Arg Asn Phe Ser Lys Leu Leu Ser Leu Arg Ala Leu His 195 200 205	625
tta aga ggt tat gtg ttc cag gaa ctc aga gaa gat gat ttc cag ccc Leu Arg Gly Tyr Val Phe Gln Glu Leu Arg Glu Asp Asp Phe Gln Pro 210 215 220	673
ctg atg cag ctt cca aac tta tcg act atc aac ttg ggt att aat ttt Leu Met Gln Leu Pro Asn Leu Ser Thr Ile Asn Leu Gly Ile Asn Phe 225 230 235 240	721
att aag caa atc gat ttc aaa ctt ttc caa aat ttc tcc aat ctg gaa Ile Lys Gln Ile Asp Phe Lys Leu Phe Gln Asn Phe Ser Asn Leu Glu 245 250 255	769
att att tac ttg tca gaa aac aga ata tca ccg ttg gta aaa gat acc Ile Ile Tyr Leu Ser Glu Asn Arg Ile Ser Pro Leu Val Lys Asp Thr 260 265 270	817
cgg cag agt tat gca aat agt tcc tct ttt caa cgt cat atc cgg aaa Arg Gln Ser Tyr Ala Asn Ser Ser Ser Phe Gln Arg His Ile Arg Lys 275 280 285	865
cga cgc tca aca gat ttt gag ttt gac cca cat tcg aac ttt tat cat Arg Arg Ser Thr Asp Phe Glu Phe Asp Pro His Ser Asn Phe Tyr His 290 295 300	913

ttc acc cgt cct tta ata aag cca caa tgt gct gct tat gga aaa gcc	961
Phe Thr Arg Pro Leu Ile Lys Pro Gln Cys Ala Ala Tyr Gly Lys Ala	
305 310 315 320	

tta gat tta agc ctc aac agt att ttc tt	990
Leu Asp Leu Ser Leu Asn Ser Ile Phe	
325	

<210> 16  
 <211> 329  
 <212> PRT  
 <213> Homo sapiens

<400> 16

Asn Ser Arg Leu Ile Asn Leu Lys Asn Leu Tyr Leu Ala Trp Asn Cys
1 5 10 15

Tyr Phe Asn Lys Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe
20 25 30

Glu Thr Leu Thr Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu
35 40 45

Ser His Val Pro Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu
50 55 60

Ser Asn Thr Gln Ile Lys Tyr Ile Ser Glu Glu Asp Phe Lys Gly Leu
65 70 75 80

Ile Asn Leu Thr Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe
85 90 95

Asn Ala Pro Phe Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn
100 105 110

Ile Asp Arg Phe Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn
115 120 125

Leu Ser Ser Thr Ser Leu Arg Lys Ile Asn Ala Ala Trp Phe Lys Asn
130 135 140

Met Pro His Leu Lys Val Leu Asp Leu Glu Phe Asn Tyr Leu Val Gly
145 150 155 160

Glu Ile Ala Ser Gly Ala Phe Leu Thr Met Leu Pro Arg Leu Glu Ile
165 170 175

Leu Asp Leu Ser Phe Asn Tyr Ile Lys Gly Ser Tyr Pro Gln His Ile

180	185	190
Asn Ile Ser Arg Asn Phe Ser Lys Leu Leu Ser Leu Arg Ala Leu His		
195	200	205
Leu Arg Gly Tyr Val Phe Gln Glu Leu Arg Glu Asp Asp Phe Gln Pro		
210	215	220
Leu Met Gln Leu Pro Asn Leu Ser Thr Ile Asn Leu Gly Ile Asn Phe		
225	230	235
Ile Lys Gln Ile Asp Phe Lys Leu Phe Gln Asn Phe Ser Asn Leu Glu		
245	250	255
Ile Ile Tyr Leu Ser Glu Asn Arg Ile Ser Pro Leu Val Lys Asp Thr		
260	265	270
Arg Gln Ser Tyr Ala Asn Ser Ser Ser Phe Gln Arg His Ile Arg Lys		
275	280	285
Arg Arg Ser Thr Asp Phe Glu Phe Asp Pro His Ser Asn Phe Tyr His		
290	295	300
Phe Thr Arg Pro Leu Ile Lys Pro Gln Cys Ala Ala Tyr Gly Lys Ala		
305	310	315
Leu Asp Leu Ser Leu Asn Ser Ile Phe		
325		

<210> 17  
 <211> 1543  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(513)  
 <223>

<400> 17	
cag tct ctt tcc aca tcc caa act ttc tat gat gct tac att tct tat	48
Gln Ser Leu Ser Thr Ser Gln Thr Phe Tyr Asp Ala Tyr Ile Ser Tyr	
1 5 10 15	
gac acc aaa gat gcc tct gtt act gac tgg gtg ata aat gag ctg cgc	96
Asp Thr Lys Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg	
20 25 30	
tac cac ctt gaa gag agc cga gac aaa aac gtt ctc ctt tgt cta gag	144
Tyr His Leu Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu	

35	40	45	
gag agg gat tgg gac ccg gga ttg gcc atc atc gac aac ctc atg cag Glu Arg Asp Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln 50 55 60			192
agc atc aac caa agc aag aaa aca gta ttt gtt tta acc aaa aaa tat Ser Ile Asn Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr 65 70 75 80			240
gca aaa agc tgg aac ttt aaa aca gct ttt tac ttg gsc ttg cag agg Ala Lys Ser Trp Asn Phe Lys Thr Ala Phe Tyr Leu Xaa Leu Gln Arg 85 90 95			288
cta atg ggt gag aac atg gat gtg att ata ttt atc ctg ctg gag cca Leu Met Gly Glu Asn Met Asp Val Ile Ile Phe Ile Leu Leu Glu Pro 100 105 110			336
gtg tta cag cat tct ccg tat ttg agg cta cgg cag cgg atc tgt aag Val Leu Gln His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys 115 120 125			384
agc tcc atc ctc cag tgg cct gac aac ccg aag gca gaa agg ttg ttt Ser Ser Ile Leu Gln Trp Pro Asp Asn Pro Lys Ala Glu Arg Leu Phe 130 135 140			432
tgg caa act ctg wga aat gtg gtc ttg act gaa aat gat tca cgg tat Trp Gln Thr Leu Xaa Asn Val Val Leu Thr Glu Asn Asp Ser Arg Tyr 145 150 155 160			480
aac aat atg tat gtc gat tcc att aag caa tac taactgacgt taagtcatga Asn Asn Met Tyr Val Asp Ser Ile Lys Gln Tyr 165 170			533
tttcgcgcca taataaagat gcaaaggaat gacatttcgt attagttatc tattgctagg			593
taacaaatta tcccaaaaac ttagtggttt aaaacaacac atttgctggc ccacagtttt			653
tgagggtcag gagtccaggc ccagcataac tgggtcttct gcttcagggg gtctcagagg			713
ctgcaatgta ggtgttcacc agagacatag gcatcactgg ggtcacactc atgtggttgt			773
tttctggatt caattcctcc tgggctattg gccaaaggct atactcatgt aagccatgcg			833
agcctatccc acaaggcagc ttgcttcacg agagctagca aaaaagagag gttgctagca			893
agatgaagtc acaatctttt gtaatcgaat caaaaaagtg atatctcatc actttggcca			953
tattctatatt gttagaagta aaccacaggt cccaccagct ccatgggagt gaccacctca			1013
gtccagggaa aacagctgaa gaccaagatg gtgagctctg attgcttcag ttgggtcatca			1073
actattttcc cttgactgct gtccctgggat ggccggctat cttgatggat agattgtgaa			1133
tatcaggagg ccagggatca ctgtggacca tcttagcagt tgacctaaaca catcttcttt			1193
tcaatatcta agaacttttg ccaactgtgac taatggctct aatattaagc tgttggtttat			1253
atztatcata tatctatggc tacatgggta tattatgctg tgggtgcggt cggttttatt			1313
tacagttgct tttaaaaata tttgctgtaa catttgactt ctaagggtta gatgccattt			1373

aagaactgag atggatagct tttaaagcat cttttacttc ttaccatttt ttaaaagtat 1433  
gcagctaaat tcgaagcttt tggcttatat tggttaattgc cattgctgta aatcttaaaa 1493  
tgaatgaata aaaatgtttc atttttaaaaa aaaaaaaaaa aaaaaaaaaa 1543

<210> 18  
<211> 171  
<212> PRT  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (93)..(93)  
<223> The 'Xaa' at location 93 stands for Gly, or Ala.

<220>  
<221> misc\_feature  
<222> (149)..(149)  
<223> The 'Xaa' at location 149 stands for Arg, or a stop codon.

<400> 18

Gln Ser Leu Ser Thr Ser Gln Thr Phe Tyr Asp Ala Tyr Ile Ser Tyr  
1 5 10 15

Asp Thr Lys Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg  
20 25 30

Tyr His Leu Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu  
35 40 45

Glu Arg Asp Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln  
50 55 60

Ser Ile Asn Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr  
65 70 75 80

Ala Lys Ser Trp Asn Phe Lys Thr Ala Phe Tyr Leu Xaa Leu Gln Arg  
85 90 95

Leu Met Gly Glu Asn Met Asp Val Ile Ile Phe Ile Leu Leu Glu Pro  
100 105 110

Val Leu Gln His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys  
115 120 125

Ser Ser Ile Leu Gln Trp Pro Asp Asn Pro Lys Ala Glu Arg Leu Phe  
130 135 140



Trp Gln Thr Leu Xaa Asn Val Val Leu Thr Glu Asn Asp Ser Arg Tyr  
 145 150 155 160

Asn Asn Met Tyr Val Asp Ser Ile Lys Gln Tyr  
 165 170

<210> 19  
 <211> 629  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(486)  
 <223>

<400> 19  
 aat gaa ttg atc ccc aat cta gag aag gaa gat ggt tct atc ttg att 48  
 Asn Glu Leu Ile Pro Asn Leu Glu Lys Glu Asp Gly Ser Ile Leu Ile  
 1 5 10 15  
 tgc ctt tat gaa agc tac ttt gac cct ggc aaa agc att agt gaa aat 96  
 Cys Leu Tyr Glu Ser Tyr Phe Asp Pro Gly Lys Ser Ile Ser Glu Asn  
 20 25 30  
 att gta agc ttc att gag aaa agc tat aag tcc atc ttt gtt ttg tcy 144  
 Ile Val Ser Phe Ile Glu Lys Ser Tyr Lys Ser Ile Phe Val Leu Xaa  
 35 40 45  
 ccc aac ttt gtc cag aat gag tgg tgc cat tat gaa ttc tac ttt gcc 192  
 Pro Asn Phe Val Gln Asn Glu Trp Cys His Tyr Glu Phe Tyr Phe Ala  
 50 55 60  
 cac cac aat ctc ttc cat gaa aat tct gat cay ata att ctt atc tta 240  
 His His Asn Leu Phe His Glu Asn Ser Asp His Ile Ile Leu Ile Leu  
 65 70 75 80  
 ctg gaa ccc att cca ttc tat tgc att ccc acc agg tat cat aaa ctg 288  
 Leu Glu Pro Ile Pro Phe Tyr Cys Ile Pro Thr Arg Tyr His Lys Leu  
 85 90 95  
 gaa gct ctc ctg gaa aaa aaa gca tac ttg gaa tgg ccc aag gat agg 336  
 Glu Ala Leu Leu Glu Lys Lys Ala Tyr Leu Glu Trp Pro Lys Asp Arg  
 100 105 110  
 cgt aaa tgt ggg ctt ttc tgg gca aac ctt cga gct gct gtt aat gtt 384  
 Arg Lys Cys Gly Leu Phe Trp Ala Asn Leu Arg Ala Ala Val Asn Val  
 115 120 125  
 aat gta tta gcc acc aga gaa atg tat gaa ctg cag aca ttc aca gag 432  
 Asn Val Leu Ala Thr Arg Glu Met Tyr Glu Leu Gln Thr Phe Thr Glu  
 130 135 140  
 tta aat gaa gag tct cga ggt tct aca atc tct ctg atg aga aca gac 480  
 Leu Asn Glu Glu Ser Arg Gly Ser Thr Ile Ser Leu Met Arg Thr Asp  
 145 150 155 160  
 tgt cta taaaatccca cagtccttgg gaagttgggg accacatata ctgttgggat 536

Cys Leu

gtacattgat acaaccttta tgatggcaat ttgacaatat ttattaaaat aaaaaatggt 596

tattcccttc aaaaaaaaaa aaaaaaaaaa aaa 629

<210> 20

<211> 162

<212> PRT

<213> Homo sapiens

<220>

<221> misc\_feature

<222> (48)..(48)

<223> The 'Xaa' at location 48 stands for Ser.

<400> 20

Asn Glu Leu Ile Pro Asn Leu Glu Lys Glu Asp Gly Ser Ile Leu Ile  
1 5 10 15

Cys Leu Tyr Glu Ser Tyr Phe Asp Pro Gly Lys Ser Ile Ser Glu Asn  
20 25 30

Ile Val Ser Phe Ile Glu Lys Ser Tyr Lys Ser Ile Phe Val Leu Xaa  
35 40 45

Pro Asn Phe Val Gln Asn Glu Trp Cys His Tyr Glu Phe Tyr Phe Ala  
50 55 60

His His Asn Leu Phe His Glu Asn Ser Asp His Ile Ile Leu Ile Leu  
65 70 75 80

Leu Glu Pro Ile Pro Phe Tyr Cys Ile Pro Thr Arg Tyr His Lys Leu  
85 90 95

Glu Ala Leu Leu Glu Lys Lys Ala Tyr Leu Glu Trp Pro Lys Asp Arg  
100 105 110

Arg Lys Cys Gly Leu Phe Trp Ala Asn Leu Arg Ala Ala Val Asn Val  
115 120 125

Asn Val Leu Ala Thr Arg Glu Met Tyr Glu Leu Gln Thr Phe Thr Glu  
130 135 140

Leu Asn Glu Glu Ser Arg Gly Ser Thr Ile Ser Leu Met Arg Thr Asp  
145 150 155 160

Cys Leu

<210> 21  
 <211> 427  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (1)..(426)  
 <223>

<400> 21  
 aag aac tcc aaa gaa aac ctc cag ttt cat gct ttt att tca tat agt 48  
 Lys Asn Ser Lys Glu Asn Leu Gln Phe His Ala Phe Ile Ser Tyr Ser  
 1 5 10 15  
 gaa cat gat tct gcc tgg gtg aaa agt gaa ttg gta cct tac cta gaa 96  
 Glu His Asp Ser Ala Trp Val Lys Ser Glu Leu Val Pro Tyr Leu Glu  
 20 25 30  
 aaa gaa gat ata cag att tgt ctt cat gag aga aac ttt gtc cct ggc 144  
 Lys Glu Asp Ile Gln Ile Cys Leu His Glu Arg Asn Phe Val Pro Gly  
 35 40 45  
 aag agc att gtg gaa aat atc atc aac tgc att gag aag agt tac aag 192  
 Lys Ser Ile Val Glu Asn Ile Ile Asn Cys Ile Glu Lys Ser Tyr Lys  
 50 55 60  
 tcc atc ttt gtt ttg tct ccc aac ttt gtc cag agt gag tgg tgc cat 240  
 Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Ser Glu Trp Cys His  
 65 70 75 80  
 tac gaa ctc tat ttt gcc cat cac aat ctc ttt cat gaa gga tct aat 288  
 Tyr Glu Leu Tyr Phe Ala His His Asn Leu Phe His Glu Gly Ser Asn  
 85 90 95  
 aac tta atc ctc atc tta ctg gaa ccc att cca cag aac agc att ccc 336  
 Asn Leu Ile Leu Ile Leu Leu Glu Pro Ile Pro Gln Asn Ser Ile Pro  
 100 105 110  
 aac aag tac cac aag ctg aag gct ctc atg acg cag cgg act tat ttg 384  
 Asn Lys Tyr His Lys Leu Lys Ala Leu Met Thr Gln Arg Thr Tyr Leu  
 115 120 125  
 cag tgg ccc aag gag aaa agc aaa cgt ggg ctc ttt tgg gct a 427  
 Gln Trp Pro Lys Glu Lys Ser Lys Arg Gly Leu Phe Trp Ala  
 130 135 140

<210> 22  
 <211> 142  
 <212> PRT  
 <213> Homo sapiens

<400> 22

Lys Asn Ser Lys Glu Asn Leu Gln Phe His Ala Phe Ile Ser Tyr Ser  
 1 5 10 15

Glu His Asp Ser Ala Trp Val Lys Ser Glu Leu Val Pro Tyr Leu Glu  
20 25 30

Lys Glu Asp Ile Gln Ile Cys Leu His Glu Arg Asn Phe Val Pro Gly  
35 40 45

Lys Ser Ile Val Glu Asn Ile Ile Asn Cys Ile Glu Lys Ser Tyr Lys  
50 55 60

Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Ser Glu Trp Cys His  
65 70 75 80

Tyr Glu Leu Tyr Phe Ala His His Asn Leu Phe His Glu Gly Ser Asn  
85 90 95

Asn Leu Ile Leu Ile Leu Leu Glu Pro Ile Pro Gln Asn Ser Ile Pro  
100 105 110

Asn Lys Tyr His Lys Leu Lys Ala Leu Met Thr Gln Arg Thr Tyr Leu  
115 120 125

Gln Trp Pro Lys Glu Lys Ser Lys Arg Gly Leu Phe Trp Ala  
130 135 140

<210> 23  
<211> 662  
<212> DNA  
<213> Homo sapiens

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<222> (1)..(627)  
<223>

<220>  
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<222> (316)..(316)  
<223> unknown nucleotide

<220>  
<221> misc\_feature  
<222> (380)..(380)  
<223> unknown nucleotide

<220>  
<221> misc\_feature  
<222> (407)..(407)  
<223> unknown nucleotide



atc tgaccaacac atgctcgcca ccctcaccac acacc  
Ile

662

<210> 24  
<211> 209  
<212> PRT  
<213> Homo sapiens

<220>  
<221> misc\_feature  
<222> (35)..(35)  
<223> The 'Xaa' at location 35 stands for Gly, or Arg.

<220>  
<221> misc\_feature  
<222> (105)..(105)  
<223> The 'Xaa' at location 105 stands for Val, or Phe.

<220>  
<221> misc\_feature  
<222> (106)..(106)  
<223> The 'Xaa' at location 106 stands for Ile, Val, Leu, or Phe.

<220>  
<221> misc\_feature  
<222> (127)..(127)  
<223> The 'Xaa' at location 127 stands for Lys, Arg, Thr, or Met.

<220>  
<221> misc\_feature  
<222> (136)..(136)  
<223> The 'Xaa' at location 136 stands for Gln, His, Arg, Pro, or Leu.

<220>  
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<222> (316)..(316)  
<223> unknown nucleotide

<220>  
<221> misc\_feature  
<222> (380)..(380)  
<223> unknown nucleotide

<220>  
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<222> (407)..(407)  
<223> unknown nucleotide

<220>  
<221> misc\_feature  
<222> (408)..(408)  
<223> unknown nucleotide

<400> 24

Ala Ser Thr Cys Ala Trp Pro Gly Phe Pro Gly Gly Gly Gly Lys Val  
1 5 10 15

Gly Glu Met Arg Met Pro Cys Pro Thr Met Pro Ser Trp Ser Ser Thr  
 20 25 30

Lys Arg Xaa Ala Gln Trp Gln Thr Gly Cys Thr Thr Ser Phe Gly Gly  
 35 40 45

Ser Trp Arg Ser Ala Val Gly Ala Gly His Ser Ala Cys Ala Trp Arg  
 50 55 60

Asn Ala Thr Gly Cys Leu Ala Lys Pro Ser Leu Arg Thr Cys Gly Pro  
 65 70 75 80

Arg Ser Met Ala Ala Ala Arg Arg Cys Leu Cys Trp Pro Thr Arg Thr  
 85 90 95

Gly Ser Val Val Ser Cys Ala Pro Xaa Xaa Leu Leu Ala Gln Gln Arg  
 100 105 110

Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu Val Ile Leu Xaa Pro  
 115 120 125

Asp Gly Gln Ala Ser Arg Leu Xaa Asp Ala Leu Thr Ser Ala Ser Ala  
 130 135 140

Ala Arg Val Ser Ser Ser Gly Pro Thr Ser Pro Val Val Ala Gln Leu  
 145 150 155 160

Leu Arg Pro Ala Cys Met Ala Leu Thr Arg Asp Asn His His Phe Tyr  
 165 170 175

Asn Arg Asn Phe Cys Gln Gly Thr His Gly Arg Ile Ala Val Ser Arg  
 180 185 190

Asn Pro Ala Arg Cys His Leu His Thr His Leu Thr Tyr Ala Cys Leu  
 195 200 205

Ile

<210> 25  
 <211> 4865  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (107)..(2617)  
 <223>

<220>  
 <221> mat\_peptide  
 <222> (173)..()  
 <223>

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 cagggccact gctgctcaca aaaccagtga ggatgatgcc aggatg atg tct gcc 115  
 Met Ser Ala  
 -20  
 tcg cgc ctg gct ggg act ctg atc cca gcc atg gcc ttc ctc tcc tgc 163  
 Ser Arg Leu Ala Gly Thr Leu Ile Pro Ala Met Ala Phe Leu Ser Cys  
 -15 -10 -5  
 gtg aga cca gaa agc tgg gag ccc tgc gtg gag gtt cct aat att act 211  
 Val Arg Pro Glu Ser Trp Glu Pro Cys Val Glu Val Pro Asn Ile Thr  
 -1 1 5 10  
 tat caa tgc atg gag ctg aat ttc tac aaa atc ccc gac aac ctc ccc 259  
 Tyr Gln Cys Met Glu Leu Asn Phe Tyr Lys Ile Pro Asp Asn Leu Pro  
 15 20 25  
 ttc tca acc aag aac ctg gac ctg agc ttt aat ccc ctg agg cat tta 307  
 Phe Ser Thr Lys Asn Leu Asp Leu Ser Phe Asn Pro Leu Arg His Leu  
 30 35 40 45  
 ggc agc tat agc ttc ttc agt ttc cca gaa ctg cag gtg ctg gat tta 355  
 Gly Ser Tyr Ser Phe Phe Ser Phe Pro Glu Leu Gln Val Leu Asp Leu  
 50 55 60  
 tcc agg tgt gaa atc cag aca att gaa gat ggg gca tat cag agc cta 403  
 Ser Arg Cys Glu Ile Gln Thr Ile Glu Asp Gly Ala Tyr Gln Ser Leu  
 65 70 75  
 agc cac ctc tct acc tta ata ttg aca gga aac ccc atc cag agt tta 451  
 Ser His Leu Ser Thr Leu Ile Leu Thr Gly Asn Pro Ile Gln Ser Leu  
 80 85 90  
 gcc ctg gga gcc ttt tct gga cta tca agt tta cag aag ctg gtg gct 499  
 Ala Leu Gly Ala Phe Ser Gly Leu Ser Ser Leu Gln Lys Leu Val Ala  
 95 100 105  
 gtg gag aca aat cta gca tct cta gag aac ttc ccc att gga cat ctc 547  
 Val Glu Thr Asn Leu Ala Ser Leu Glu Asn Phe Pro Ile Gly His Leu  
 110 115 120 125  
 aaa act ttg aaa gaa ctt aat gtg gct cac aat ctt atc caa tct ttc 595  
 Lys Thr Leu Lys Glu Leu Asn Val Ala His Asn Leu Ile Gln Ser Phe  
 130 135 140  
 aaa tta cct gag tat ttt tct aat ctg acc aat cta gag cac ttg gac 643  
 Lys Leu Pro Glu Tyr Phe Ser Asn Leu Thr Asn Leu Glu His Leu Asp  
 145 150 155  
 ctt tcc agc aac aag att caa agt att tat tgc aca gac ttg cgg gtt 691  
 Leu Ser Ser Asn Lys Ile Gln Ser Ile Tyr Cys Thr Asp Leu Arg Val



160					165					170						
cta	cat	caa	atg	ccc	cta	ctc	aat	ctc	tct	tta	gac	ctg	tcc	ctg	aac	739
Leu	His	Gln	Met	Pro	Leu	Leu	Asn	Leu	Ser	Leu	Asp	Leu	Ser	Leu	Asn	
	175					180					185					
cct	atg	aac	ttt	atc	caa	cca	ggg	gca	ttt	aaa	gaa	att	agg	ctt	cat	787
Pro	Met	Asn	Phe	Ile	Gln	Pro	Gly	Ala	Phe	Lys	Glu	Ile	Arg	Leu	His	
	190					195					200				205	
aag	ctg	act	tta	aga	aat	aat	ttt	gat	agt	tta	aat	gta	atg	aaa	act	835
Lys	Leu	Thr	Leu	Arg	Asn	Asn	Phe	Asp	Ser	Leu	Asn	Val	Met	Lys	Thr	
				210					215					220		
tgt	att	caa	ggg	ctg	gct	ggg	tta	gaa	gtc	cat	cgt	ttg	ggt	ctg	gga	883
Cys	Ile	Gln	Gly	Leu	Ala	Gly	Leu	Glu	Val	His	Arg	Leu	Val	Leu	Gly	
			225					230					235			
gaa	ttt	aga	aat	gaa	gga	aac	ttg	gaa	aag	ttt	gac	aaa	tct	gct	cta	931
Glu	Phe	Arg	Asn	Glu	Gly	Asn	Leu	Glu	Lys	Phe	Asp	Lys	Ser	Ala	Leu	
		240					245					250				
gag	ggc	ctg	tgc	aat	ttg	acc	att	gaa	gaa	ttc	cga	tta	gca	tac	tta	979
Glu	Gly	Leu	Cys	Asn	Leu	Thr	Ile	Glu	Glu	Phe	Arg	Leu	Ala	Tyr	Leu	
	255					260					265					
gac	tac	tac	ctc	gat	gat	att	att	gac	tta	ttt	aat	tgt	ttg	aca	aat	1027
Asp	Tyr	Tyr	Leu	Asp	Asp	Ile	Ile	Asp	Leu	Phe	Asn	Cys	Leu	Thr	Asn	
	270					275					280				285	
ggt	tct	tca	ttt	tcc	ctg	gtg	agt	gtg	act	att	gaa	agg	gta	aaa	gac	1075
Val	Ser	Ser	Phe	Ser	Leu	Val	Ser	Val	Thr	Ile	Glu	Arg	Val	Lys	Asp	
				290					295					300		
ttt	tct	tat	aat	ttc	gga	tggt	caa	cat	tta	gaa	tta	ggt	aac	tgt	aaa	1123
Phe	Ser	Tyr	Asn	Phe	Gly	Trp	Gln	His	Leu	Glu	Leu	Val	Asn	Cys	Lys	
			305					310					315			
ttt	gga	cag	ttt	ccc	aca	ttg	aaa	ctc	aaa	tct	ctc	aaa	agg	ctt	act	1171
Phe	Gly	Gln	Phe	Pro	Thr	Leu	Lys	Leu	Lys	Ser	Leu	Lys	Arg	Leu	Thr	
		320					325					330				
ttc	act	tcc	aac	aaa	ggg	ggg	aat	gct	ttt	tca	gaa	ggt	gat	cta	cca	1219
Phe	Thr	Ser	Asn	Lys	Gly	Gly	Asn	Ala	Phe	Ser	Glu	Val	Asp	Leu	Pro	
	335					340					345					
agc	ctt	gag	ttt	cta	gat	ctc	agt	aga	aat	ggc	ttg	agt	ttc	aaa	ggg	1267
Ser	Leu	Glu	Phe	Leu	Asp	Leu	Ser	Arg	Asn	Gly	Leu	Ser	Phe	Lys	Gly	
	350					355					360				365	
tgc	tgt	tct	caa	agt	gat	ttt	ggg	aca	acc	agc	cta	aag	tat	tta	gat	1315
Cys	Cys	Ser	Gln	Ser	Asp	Phe	Gly	Thr	Thr	Ser	Leu	Lys	Tyr	Leu	Asp	
				370					375					380		
ctg	agc	ttc	aat	ggg	ggt	att	acc	atg	agt	tca	aac	ttc	ttg	ggc	tta	1363
Leu	Ser	Phe	Asn	Gly	Val	Ile	Thr	Met	Ser	Ser	Asn	Phe	Leu	Gly	Leu	
			385					390					395			
gaa	caa	cta	gaa	cat	ctg	gat	ttc	cag	cat	tcc	aat	ttg	aaa	caa	atg	1411
Glu	Gln	Leu	Glu	His	Leu	Asp	Phe	Gln	His	Ser	Asn	Leu	Lys	Gln	Met	
		400					405					410				

agt gag ttt tca gta ttc cta tca ctc aga aac ctc att tac ctt gac	1459
Ser Glu Phe Ser Val Phe Leu Ser Leu Arg Asn Leu Ile Tyr Leu Asp	
415 420 425	
att tct cat act cac acc aga gtt gct ttc aat ggc atc ttc aat ggc	1507
Ile Ser His Thr His Thr Arg Val Ala Phe Asn Gly Ile Phe Asn Gly	
430 435 440 445	
ttg tcc agt ctc gaa gtc ttg aaa atg gct ggc aat tct ttc cag gaa	1555
Leu Ser Ser Leu Glu Val Leu Lys Met Ala Gly Asn Ser Phe Gln Glu	
450 455 460	
aac ttc ctt cca gat atc ttc aca gag ctg aga aac ttg acc ttc ctg	1603
Asn Phe Leu Pro Asp Ile Phe Thr Glu Leu Arg Asn Leu Thr Phe Leu	
465 470 475	
gac ctc tct cag tgt caa ctg gag cag ttg tct cca aca gca ttt aac	1651
Asp Leu Ser Gln Cys Gln Leu Glu Gln Leu Ser Pro Thr Ala Phe Asn	
480 485 490	
tca ctc tcc agt ctt cag gta cta aat atg agc cac aac aac ttc ttt	1699
Ser Leu Ser Ser Leu Gln Val Leu Asn Met Ser His Asn Asn Phe Phe	
495 500 505	
tca ttg gat acg ttt cct tat aag tgt ctg aac tcc ctc cag gtt ctt	1747
Ser Leu Asp Thr Phe Pro Tyr Lys Cys Leu Asn Ser Leu Gln Val Leu	
510 515 520 525	
gat tac agt ctc aat cac ata atg act tcc aaa aaa cag gaa cta cag	1795
Asp Tyr Ser Leu Asn His Ile Met Thr Ser Lys Lys Gln Glu Leu Gln	
530 535 540	
cat ttt cca agt agt cta gct ttc tta aat ctt act cag aat gac ttt	1843
His Phe Pro Ser Ser Leu Ala Phe Leu Asn Leu Thr Gln Asn Asp Phe	
545 550 555	
gct tgt act tgt gaa cac cag agt ttc ctg caa tgg atc aag gac cag	1891
Ala Cys Thr Cys Glu His Gln Ser Phe Leu Gln Trp Ile Lys Asp Gln	
560 565 570	
agg cag ctc ttg gtg gaa gtt gaa cga atg gaa tgt gca aca cct tca	1939
Arg Gln Leu Leu Val Glu Val Glu Arg Met Glu Cys Ala Thr Pro Ser	
575 580 585	
gat aag cag ggc atg cct gtg ctg agt ttg aat atc acc tgt cag atg	1987
Asp Lys Gln Gly Met Pro Val Leu Ser Leu Asn Ile Thr Cys Gln Met	
590 595 600 605	
aat aag acc atc att ggt gtg tcg gtc ctc agt gtg ctt gta gta tct	2035
Asn Lys Thr Ile Ile Gly Val Ser Val Leu Ser Val Leu Val Val Ser	
610 615 620	
gtt gta gca gtt ctg gtc tat aag ttc tat ttt cac ctg atg ctt ctt	2083
Val Val Ala Val Leu Val Tyr Lys Phe Tyr Phe His Leu Met Leu Leu	
625 630 635	
gct ggc tgc ata aag tat ggt aga ggt gaa aac atc tat gat gcc ttt	2131
Ala Gly Cys Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr Asp Ala Phe	
640 645 650	

gtt atc tac tca agc cag gat gag gac tgg gta agg aat gag cta gta Val Ile Tyr Ser Ser Gln Asp Glu Asp Trp Val Arg Asn Glu Leu Val 655 660 665	2179
aag aat tta gaa gaa ggg gtg cct cca ttt cag ctc tgc ctt cac tac Lys Asn Leu Glu Glu Gly Val Pro Pro Phe Gln Leu Cys Leu His Tyr 670 675 680 685	2227
aga gac ttt att ccc ggt gtg gcc att gct gcc aac atc atc cat gaa Arg Asp Phe Ile Pro Gly Val Ala Ile Ala Ala Asn Ile Ile His Glu 690 695 700	2275
ggg ttc cat aaa agc cga aag gtg att gtt gtg gtg tcc cag cac ttc Gly Phe His Lys Ser Arg Lys Val Ile Val Val Val Ser Gln His Phe 705 710 715	2323
atc cag agc cgc tgg tgt atc ttt gaa tat gag att gct cag acc tgg Ile Gln Ser Arg Trp Cys Ile Phe Glu Tyr Glu Ile Ala Gln Thr Trp 720 725 730	2371
cag ttt ctg agc agt cgt gct ggt atc atc ttc att gtc ctg cag aag Gln Phe Leu Ser Ser Arg Ala Gly Ile Ile Phe Ile Val Leu Gln Lys 735 740 745	2419
gtg gag aag acc ctg ctc agg cag cag gtg gag ctg tac cgc ctt ctc Val Glu Lys Thr Leu Leu Arg Gln Gln Val Glu Leu Tyr Arg Leu Leu 750 755 760 765	2467
agc agg aac act tac ctg gag tgg gag gac agt gtc ctg ggg cgg cac Ser Arg Asn Thr Tyr Leu Glu Trp Glu Asp Ser Val Leu Gly Arg His 770 775 780	2515
atc ttc tgg aga cga ctc aga aaa gcc ctg ctg gat ggt aaa tca tgg Ile Phe Trp Arg Arg Leu Arg Lys Ala Leu Leu Asp Gly Lys Ser Trp 785 790 795	2563
aat cca gaa gga aca gtg ggt aca gga tgc aat tgg cag gaa gca aca Asn Pro Glu Gly Thr Val Gly Thr Gly Cys Asn Trp Gln Glu Ala Thr 800 805 810	2611
tct atc tgaagaggaa aaataaaaac ctctgaggc atttcttgcc cagctgggctc Ser Ile 815	2667
caacacttgt tcagttaata agtattaaat gctgccacat gtcaggcctt atgctaaggg	2727
tgagtaattc catggtgcac tagatatgca gggctgctaa tctcaaggag cttccagtgc	2787
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agtcaaggaa cccatgacaa agaaagtcac ttcaactctt acctcatcaa gttgaataaaa	2907
gacagagaaa acagaaagag acattgttct tttcctgagt cttttgaatg gaaattgtat	2967
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ctaattccta aggaaacctg attaacacat gtcacaacc atcctgggtca ttctcgaaca	3207

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tcactcgatg	tcattccaaa	gttattgcct	actaagtaat	gactgtcatg	aaagcagcat	3447
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tcttatcatg	gacaatttgg	gctagaggca	ggaaggaagt	gggatgacct	caggaagtca	3567
ccttttcttg	attccagaaa	catatgggct	gataaacccg	gggtgacctc	atgaaatgag	3627
ttgcagcaga	agttttat	tttcagaaca	agtgatgttt	gatggacctc	tgaatctctt	3687
tagggagaca	cagatggctg	ggatccctcc	cctgtaccct	tctcactgcc	aggagaacta	3747
cgtgtgaagg	tattcaaggc	agggagtata	cattgctgtt	tcctgttggg	caatgctcct	3807
tgaccacatt	ttgggaagag	tggatgttat	cattgagaaa	acaatgtgtc	tggaattaat	3867
ggggttctta	taaagaaggt	tcccagaaaa	gaatgttcat	tccagcttct	tcaggaaaca	3927
ggaacattca	aggaaaagga	caatcaggat	gtcatcaggg	aatgaaaat	aaaaaccaca	3987
atgagatatc	accttatacc	aggtagatgg	ctactataaa	aaaatgaagt	gtcatcaagg	4047
atatagagaa	attggaaccc	ttcttcactg	ctggagggaa	tggaaaatgg	tgtagccggt	4107
atgaaaaaca	gtacggaggt	ttctcaaaaa	ttaaaaatag	aactgctata	tgatccagca	4167
atctcacttc	tgtatatata	cccaaaataa	ttgaaatcag	aatttcaaga	aaatattttac	4227
actcccatgt	tcattgtggc	actcttcaca	atcactgttt	caaagttat	ggaaacaacc	4287
caaatttcca	ttggaaaata	aatggacaaa	ggaaatgtgc	atataacgta	caatggggat	4347
attattcagc	ctaaaaaaag	gggggatcct	gttattttatg	acaacatgaa	taaacccgga	4407
ggccattatg	ctatgtaaaa	tgagcaagta	acagaaagac	aaatactgcc	tgatttcatt	4467
tatatgaggt	tctaaaatag	tcaaactcat	agaagcagag	aatagaacag	tggttcctag	4527
ggaaaaggag	gaagggagaa	atgaggaaat	agggagttgt	ctaattggta	taaaattata	4587
gtatgcaaga	tgaattagct	ctaaagatca	gctgtatagc	agagttcgta	taatgaacaa	4647
tactgtatta	tgcacttaac	attttgttaa	gagggtagct	ctcatgttaa	gtgttcttac	4707
catatacata	tacacaagga	agctttttgga	ggtgatggat	atatttatta	ccttgattgt	4767
ggtgatgggt	tgacaggtat	gtgactatgt	ctaaactcat	caaattgtat	acattaaata	4827
tatgcagttt	tataatatca	aaaaaaaaaa	aaaaaaaaaa			4865

<210> 26  
 <211> 837  
 <212> PRT

<213> Homo sapiens

<400> 26

Met Ser Ala Ser Arg Leu Ala Gly Thr Leu Ile Pro Ala Met Ala Phe  
-20 -15 -10

Leu Ser Cys Val Arg Pro Glu Ser Trp Glu Pro Cys Val Glu Val Pro  
-5 -1 1 5 10

Asn Ile Thr Tyr Gln Cys Met Glu Leu Asn Phe Tyr Lys Ile Pro Asp  
15 20 25

Asn Leu Pro Phe Ser Thr Lys Asn Leu Asp Leu Ser Phe Asn Pro Leu  
30 35 40

Arg His Leu Gly Ser Tyr Ser Phe Phe Ser Phe Pro Glu Leu Gln Val  
45 50 55

Leu Asp Leu Ser Arg Cys Glu Ile Gln Thr Ile Glu Asp Gly Ala Tyr  
60 65 70

Gln Ser Leu Ser His Leu Ser Thr Leu Ile Leu Thr Gly Asn Pro Ile  
75 80 85 90

Gln Ser Leu Ala Leu Gly Ala Phe Ser Gly Leu Ser Ser Leu Gln Lys  
95 100 105

Leu Val Ala Val Glu Thr Asn Leu Ala Ser Leu Glu Asn Phe Pro Ile  
110 115 120

Gly His Leu Lys Thr Leu Lys Glu Leu Asn Val Ala His Asn Leu Ile  
125 130 135

Gln Ser Phe Lys Leu Pro Glu Tyr Phe Ser Asn Leu Thr Asn Leu Glu  
140 145 150

His Leu Asp Leu Ser Ser Asn Lys Ile Gln Ser Ile Tyr Cys Thr Asp  
155 160 165 170

Leu Arg Val Leu His Gln Met Pro Leu Leu Asn Leu Ser Leu Asp Leu  
175 180 185

Ser Leu Asn Pro Met Asn Phe Ile Gln Pro Gly Ala Phe Lys Glu Ile  
190 195 200

Arg Leu His Lys Leu Thr Leu Arg Asn Asn Phe Asp Ser Leu Asn Val

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Met	Lys	Thr	Cys	Ile	Gln	Gly	Leu	Ala	Gly	Leu	Glu	Val	His	Arg	Leu
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Val	Leu	Gly	Glu	Phe	Arg	Asn	Glu	Gly	Asn	Leu	Glu	Lys	Phe	Asp	Lys
235					240					245					250
Ser	Ala	Leu	Glu	Gly	Leu	Cys	Asn	Leu	Thr	Ile	Glu	Glu	Phe	Arg	Leu
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Ala	Tyr	Leu	Asp	Tyr	Tyr	Leu	Asp	Asp	Ile	Ile	Asp	Leu	Phe	Asn	Cys
			270					275						280	
Leu	Thr	Asn	Val	Ser	Ser	Phe	Ser	Leu	Val	Ser	Val	Thr	Ile	Glu	Arg
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Val	Lys	Asp	Phe	Ser	Tyr	Asn	Phe	Gly	Trp	Gln	His	Leu	Glu	Leu	Val
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Asn	Cys	Lys	Phe	Gly	Gln	Phe	Pro	Thr	Leu	Lys	Leu	Lys	Ser	Leu	Lys
315					320					325					330
Arg	Leu	Thr	Phe	Thr	Ser	Asn	Lys	Gly	Gly	Asn	Ala	Phe	Ser	Glu	Val
				335					340					345	
Asp	Leu	Pro	Ser	Leu	Glu	Phe	Leu	Asp	Leu	Ser	Arg	Asn	Gly	Leu	Ser
			350					355					360		
Phe	Lys	Gly	Cys	Cys	Ser	Gln	Ser	Asp	Phe	Gly	Thr	Thr	Ser	Leu	Lys
		365					370					375			
Tyr	Leu	Asp	Leu	Ser	Phe	Asn	Gly	Val	Ile	Thr	Met	Ser	Ser	Asn	Phe
	380					385					390				
Leu	Gly	Leu	Glu	Gln	Leu	Glu	His	Leu	Asp	Phe	Gln	His	Ser	Asn	Leu
395					400					405					410
Lys	Gln	Met	Ser	Glu	Phe	Ser	Val	Phe	Leu	Ser	Leu	Arg	Asn	Leu	Ile
				415					420					425	
Tyr	Leu	Asp	Ile	Ser	His	Thr	His	Thr	Arg	Val	Ala	Phe	Asn	Gly	Ile
			430					435					440		
Phe	Asn	Gly	Leu	Ser	Ser	Leu	Glu	Val	Leu	Lys	Met	Ala	Gly	Asn	Ser
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Phe Gln Glu Asn Phe Leu Pro Asp Ile Phe Thr Glu Leu Arg Asn Leu  
460 465 470

Thr Phe Leu Asp Leu Ser Gln Cys Gln Leu Glu Gln Leu Ser Pro Thr  
475 480 485 490

Ala Phe Asn Ser Leu Ser Ser Leu Gln Val Leu Asn Met Ser His Asn  
495 500 505

Asn Phe Phe Ser Leu Asp Thr Phe Pro Tyr Lys Cys Leu Asn Ser Leu  
510 515 520

Gln Val Leu Asp Tyr Ser Leu Asn His Ile Met Thr Ser Lys Lys Gln  
525 530 535

Glu Leu Gln His Phe Pro Ser Ser Leu Ala Phe Leu Asn Leu Thr Gln  
540 545 550

Asn Asp Phe Ala Cys Thr Cys Glu His Gln Ser Phe Leu Gln Trp Ile  
555 560 565 570

Lys Asp Gln Arg Gln Leu Leu Val Glu Val Glu Arg Met Glu Cys Ala  
575 580 585

Thr Pro Ser Asp Lys Gln Gly Met Pro Val Leu Ser Leu Asn Ile Thr  
590 595 600

Cys Gln Met Asn Lys Thr Ile Ile Gly Val Ser Val Leu Ser Val Leu  
605 610 615

Val Val Ser Val Val Ala Val Leu Val Tyr Lys Phe Tyr Phe His Leu  
620 625 630

Met Leu Leu Ala Gly Cys Ile Lys Tyr Gly Arg Gly Glu Asn Ile Tyr  
635 640 645 650

Asp Ala Phe Val Ile Tyr Ser Ser Gln Asp Glu Asp Trp Val Arg Asn  
655 660 665

Glu Leu Val Lys Asn Leu Glu Glu Gly Val Pro Pro Phe Gln Leu Cys  
670 675 680

Leu His Tyr Arg Asp Phe Ile Pro Gly Val Ala Ile Ala Ala Asn Ile  
685 690 695

Ile His Glu Gly Phe His Lys Ser Arg Lys Val Ile Val Val Val Ser  
700 705 710

Gln His Phe Ile Gln Ser Arg Trp Cys Ile Phe Glu Tyr Glu Ile Ala  
715 720 725 730

Gln Thr Trp Gln Phe Leu Ser Ser Arg Ala Gly Ile Ile Phe Ile Val  
735 740 745

Leu Gln Lys Val Glu Lys Thr Leu Leu Arg Gln Gln Val Glu Leu Tyr  
750 755 760

Arg Leu Leu Ser Arg Asn Thr Tyr Leu Glu Trp Glu Asp Ser Val Leu  
765 770 775

Gly Arg His Ile Phe Trp Arg Arg Leu Arg Lys Ala Leu Leu Asp Gly  
780 785 790

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Glu Ala Thr Ser Ile  
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ggt ctc tca cta aaa gat aac aat gtc aca gct gtc ccc acc act ttg 96  
Val Leu Ser Leu Lys Asp Asn Asn Val Thr Ala Val Pro Thr Thr Leu  
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cca cct aat tta cta gag ctc tat ctt tat aac aat atc att aag aaa 144  
Pro Pro Asn Leu Leu Glu Leu Tyr Leu Tyr Asn Asn Ile Ile Lys Lys  
35 40 45

atc caa gaa aat gat ttc aat aac ctc aat gag ttg caa gtc ctt gac 192  
Ile Gln Glu Asn Asp Phe Asn Asn Leu Asn Glu Leu Gln Val Leu Asp  
50 55 60



cta cgt gga aat tgc cct cga tgt cat aat gtc cca tat ccg tgt aca	240
Leu Arg Gly Asn Cys Pro Arg Cys His Asn Val Pro Tyr Pro Cys Thr	
65 70 75 80	

ccg tgt gaa aat aat tcc ccc tta cag atc cat gac aat gct ttc aat	288
Pro Cys Glu Asn Asn Ser Pro Leu Gln Ile His Asp Asn Ala Phe Asn	
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tca tcg aca gac	300
Ser Ser Thr Asp	
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Val Leu Ser Leu Lys Asp Asn Asn Val Thr Ala Val Pro Thr Thr Leu
20 25 30

Pro Pro Asn Leu Leu Glu Leu Tyr Leu Tyr Asn Asn Ile Ile Lys Lys
35 40 45

Ile Gln Glu Asn Asp Phe Asn Asn Leu Asn Glu Leu Gln Val Leu Asp
50 55 60

Leu Arg Gly Asn Cys Pro Arg Cys His Asn Val Pro Tyr Pro Cys Thr
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Ser Ser Thr Asp
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Met	Pro	Pro	Asn	Leu	Lys	Asn	Leu	Ser	Leu	Ala	Lys	Asn	Gly	Leu	Lys	
			20				25						30			
tct	ttc	ttt	tgg	gac	aga	ctc	cag	tta	ctg	aag	cat	ttg	gaa	att	ttg	144
Ser	Phe	Phe	Trp	Asp	Arg	Leu	Gln	Leu	Leu	Lys	His	Leu	Glu	Ile	Leu	
		35				40					45					
gac	ctc	agc	cat	aac	cag	ctg	aca	aaa	gta	cct	gag	aga	ttg	gcc	aac	192
Asp	Leu	Ser	His	Asn	Gln	Thr	Lys	Val	Pro	Glu	Arg	Leu	Ala	Asn		
	50				55				60							
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Cys	Ser	Lys	Ser	Leu	Thr	Thr	Leu	Ile	Leu	Lys	His	Asn	Gln	Ile	Arg	
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Gln	Leu	Thr	Lys	Tyr	Phe	Leu	Glu	Asp	Ala	Leu	Gln	Leu	Arg	Tyr	Leu	
			85				90						95			
gac	atc	agt	tca	aat	aaa	atc	cag	gtc	att	cag	aag	act	agc	ttc	cca	336
Asp	Ile	Ser	Ser	Asn	Lys	Ile	Gln	Val	Ile	Gln	Lys	Thr	Ser	Phe	Pro	
			100				105						110			
gaa	aat	gtc	ctc	aac	aat	ctg	gag	atg	ttg	gtt	tta	cat	cac	aat	cgc	384
Glu	Asn	Val	Leu	Asn	Asn	Leu	Glu	Met	Leu	Val	Leu	His	His	Asn	Arg	
		115				120					125					
ttt	ctt	tgc	aac	tgt	gat	gct	gtg	tgg	ttt	gtc	tgg	tgg	gtt	aac	cat	432
Phe	Leu	Cys	Asn	Cys	Asp	Ala	Val	Trp	Phe	Val	Trp	Trp	Val	Asn	His	
	130					135				140						
aca	gat	gtt	act	att	cca	tac	ctg	gcc	act	gat	gtg	act	tgt	gta	ggc	480
Thr	Asp	Val	Thr	Ile	Pro	Tyr	Leu	Ala	Thr	Asp	Val	Thr	Cys	Val	Gly	
145				150					155					160		
cca	gga	gca	cac	aaa	ggc	caa	agt	gtc	ata	tcc	ctt	gat	ctg	tat	acg	528
Pro	Gly	Ala	His	Lys	Gly	Gln	Ser	Val	Ile	Ser	Leu	Asp	Leu	Tyr	Thr	
			165			170							175			
tgt	gag	tta	gat	ctc	aca	aac	ctg	att	ctg	ttc	tca	gtt	tcc	ata	tca	576
Cys	Glu	Leu	Asp	Leu	Thr	Asn	Leu	Ile	Leu	Phe	Ser	Val	Ser	Ile	Ser	
			180				185						190			
tca	gtc	ctc	ttt	ctt	atg	gta	gtt	atg	aca	aca	agt	cac	ctc	ttt	ttc	624
Ser	Val	Leu	Phe	Leu	Met	Val	Val	Met	Thr	Thr	Ser	His	Leu	Phe	Phe	
		195				200						205				
tgg	gat	atg	tgg	tac	att	tat	tat	ttt	tgg	aaa	gca	aag	ata	aag	ggg	672
Trp	Asp	Met	Trp	Tyr	Ile	Tyr	Tyr	Phe	Trp	Lys	Ala	Lys	Ile	Lys	Gly	
	210				215					220						
tat	cca	gca	tct	gca	atc	cca	tgg	agt	cct	tgt	tat	gat	gct	ttt	att	720
Tyr	Pro	Ala	Ser	Ala	Ile	Pro	Trp	Ser	Pro	Cys	Tyr	Asp	Ala	Phe	Ile	
225				230					235					240		
gtg	tat	gac	act	aaa	aac	tca	gct	gtg	aca	gaa	tgg	gtt	ttg	cag	gag	768
Val	Tyr	Asp	Thr	Lys	Asn	Ser	Ala	Val	Thr	Glu	Trp	Val	Leu	Gln	Glu	

245										250					255					
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Leu	Val	Ala	Lys	Leu	Glu	Asp	Pro	Arg	Glu	Lys	His	Phe	Asn	Leu	Cys					
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Leu	Glu	Glu	Arg	Asp	Trp	Leu	Pro	Gly	Gln	Pro	Val	Leu	Glu	Asn	Leu					
		275					280					285								
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Ser	Gln	Ser	Ile	Gln	Leu	Ser	Lys	Lys	Thr	Val	Phe	Val	Met	Thr	Gln					
	290					295					300									
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Gln	Arg	Leu	Leu	Asp	Glu	Lys	Val	Asp	Val	Ile	Ile	Leu	Ile	Phe	Leu					
				325					330					335						
gaa	aga	cct	ctt	cag	aag	tct	aag	ttt	ctt	cag	ctc	agg	aag	aga	ctc	1056				
Glu	Arg	Pro	Leu	Gln	Lys	Ser	Lys	Phe	Leu	Gln	Leu	Arg	Lys	Arg	Leu					
			340					345					350							
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Cys	Arg	Ser	Ser	Val	Leu	Glu	Trp	Pro	Ala	Asn	Pro	Gln	Ala	His	Pro					
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Tyr	Phe	Trp	Gln	Cys	Leu	Lys	Asn	Ala	Leu	Thr	Thr	Asp	Asn	His	Val					
	370					375					380									
gct	tat	agt	caa	atg	ttc	aag	gaa	aca	gtc	tagctctctg	aagaatgtca					1202				
Ala	Tyr	Ser	Gln	Met	Phe	Lys	Glu	Thr	Val											
385					390															
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gaaattaaga	aggggagact	gatagaagat	aatttctttc	ttcatgtgcc	atgctcagtt											1382				
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Ser Phe Phe Trp Asp Arg Leu Gln Leu Leu Lys His Leu Glu Ile Leu  
35 40 45

Asp Leu Ser His Asn Gln Leu Thr Lys Val Pro Glu Arg Leu Ala Asn  
50 55 60

Cys Ser Lys Ser Leu Thr Thr Leu Ile Leu Lys His Asn Gln Ile Arg  
65 70 75 80

Gln Leu Thr Lys Tyr Phe Leu Glu Asp Ala Leu Gln Leu Arg Tyr Leu  
85 90 95

Asp Ile Ser Ser Asn Lys Ile Gln Val Ile Gln Lys Thr Ser Phe Pro  
100 105 110

Glu Asn Val Leu Asn Asn Leu Glu Met Leu Val Leu His His Asn Arg  
115 120 125

Phe Leu Cys Asn Cys Asp Ala Val Trp Phe Val Trp Trp Val Asn His  
130 135 140

Thr Asp Val Thr Ile Pro Tyr Leu Ala Thr Asp Val Thr Cys Val Gly  
145 150 155 160

Pro Gly Ala His Lys Gly Gln Ser Val Ile Ser Leu Asp Leu Tyr Thr  
165 170 175

Cys Glu Leu Asp Leu Thr Asn Leu Ile Leu Phe Ser Val Ser Ile Ser  
180 185 190

Ser Val Leu Phe Leu Met Val Val Met Thr Thr Ser His Leu Phe Phe  
195 200 205

Trp Asp Met Trp Tyr Ile Tyr Tyr Phe Trp Lys Ala Lys Ile Lys Gly  
210 215 220

Tyr Pro Ala Ser Ala Ile Pro Trp Ser Pro Cys Tyr Asp Ala Phe Ile  
 225 230 235 240

Val Tyr Asp Thr Lys Asn Ser Ala Val Thr Glu Trp Val Leu Gln Glu  
 245 250 255

Leu Val Ala Lys Leu Glu Asp Pro Arg Glu Lys His Phe Asn Leu Cys  
 260 265 270

Leu Glu Glu Arg Asp Trp Leu Pro Gly Gln Pro Val Leu Glu Asn Leu  
 275 280 285

Ser Gln Ser Ile Gln Leu Ser Lys Lys Thr Val Phe Val Met Thr Gln  
 290 295 300

Lys Tyr Ala Lys Thr Glu Ser Phe Lys Met Ala Phe Tyr Leu Ser His  
 305 310 315 320

Gln Arg Leu Leu Asp Glu Lys Val Asp Val Ile Ile Leu Ile Phe Leu  
 325 330 335

Glu Arg Pro Leu Gln Lys Ser Lys Phe Leu Gln Leu Arg Lys Arg Leu  
 340 345 350

Cys Arg Ser Ser Val Leu Glu Trp Pro Ala Asn Pro Gln Ala His Pro  
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Tyr Phe Trp Gln Cys Leu Lys Asn Ala Leu Thr Thr Asp Asn His Val  
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Thr	Arg	Leu	Lys	Asp	Val	His	Leu	His	Glu	Leu	Ser	Cys	Asn	Thr	Ala	
		35					40					45				
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Leu	Leu	Ile	Val	Thr	Ile	Val	Val	Ile	Met	Leu	Val	Leu	Gly	Leu	Ala	
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Val	Ala	Phe	Cys	Cys	Leu	His	Phe	Asp	Leu	Pro	Trp	Tyr	Leu	Arg	Met	
65					70				75						80	
cta	ggc	caa	tgc	aca	caa	aca	tgg	cac	agg	gtt	agg	aaa	aca	acc	caa	289
Leu	Gly	Gln	Cys	Thr	Gln	Thr	Trp	His	Arg	Val	Arg	Lys	Thr	Thr	Gln	
				85					90					95		
gaa	caa	ctc	aag	aga	aat	gtc	cga	ttc	cac	gca	ttt	att	tca	tac	agt	337
Glu	Gln	Leu	Lys	Arg	Asn	Val	Arg	Phe	His	Ala	Phe	Ile	Ser	Tyr	Ser	
			100					105					110			
gaa	cat	gat	tct	ctg	tgg	gtg	aag	aat	gaa	ttg	atc	ccc	aat	cta	gag	385
Glu	His	Asp	Ser	Leu	Trp	Val	Lys	Asn	Glu	Leu	Ile	Pro	Asn	Leu	Glu	
		115					120					125				
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Lys	Glu	Asp	Gly	Ser	Ile	Leu	Ile	Cys	Leu	Tyr	Glu	Ser	Tyr	Phe	Asp	
	130					135					140					
cct	ggc	aaa	agc	att	agt	gaa	aat	att	gta	agc	ttc	att	gag	aaa	agc	481
Pro	Gly	Lys	Ser	Ile	Ser	Glu	Asn	Ile	Val	Ser	Phe	Ile	Glu	Lys	Ser	
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Tyr	Lys	Ser	Ile	Phe	Val	Leu	Ser	Pro	Asn	Phe	Val	Gln	Asn	Glu	Trp	
				165					170					175		
tgc	cat	tat	gaa	ttc	tac	ttt	gcc	cac	cac	aat	ctc	ttc	cat	gaa	aat	577
Cys	His	Tyr	Glu	Phe	Tyr	Phe	Ala	His	His	Asn	Leu	Phe	His	Glu	Asn	
			180					185					190			
tct	gat	cac	ata	att	ctt	atc	tta	ctg	gaa	ccc	att	cca	ttc	tat	tgc	625
Ser	Asp	His	Ile	Ile	Leu	Ile	Leu	Leu	Glu	Pro	Ile	Pro	Phe	Tyr	Cys	
		195					200					205				
att	ccc	acc	agg	tat	cat	aaa	ctg	gaa	gct	ctc	ctg	gaa	aaa	aaa	gca	673
Ile	Pro	Thr	Arg	Tyr	His	Lys	Leu	Glu	Ala	Leu	Leu	Glu	Lys	Lys	Ala	
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Tyr	Leu	Glu	Trp	Pro	Lys	Asp	Arg	Arg	Lys	Cys	Gly	Leu	Phe	Trp	Ala	
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Asn	Leu	Arg	Ala	Ala	Val	Asn	Val	Asn	Val	Leu	Ala	Thr	Arg	Glu	Met	
				245					250					255		
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Tyr	Glu	Leu	Gln	Thr	Phe	Thr	Glu	Leu	Asn	Glu	Glu	Ser	Arg	Gly	Ser	

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Thr Ile Ser Leu Met Arg Thr Asp Cys Leu			
275	280		
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<212>	PRT		
<213>	Homo sapiens		
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Ser Asp Ala Lys Ile Arg His Gln Ala Tyr Ser Glu Val Met Met Val			
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Gly Trp Ser Asp Ser Tyr Thr Cys Glu Tyr Pro Leu Asn Leu Arg Gly			
	20	25	30
Thr Arg Leu Lys Asp Val His Leu His Glu Leu Ser Cys Asn Thr Ala			
	35	40	45
Leu Leu Ile Val Thr Ile Val Val Ile Met Leu Val Leu Gly Leu Ala			
	50	55	60
Val Ala Phe Cys Cys Leu His Phe Asp Leu Pro Trp Tyr Leu Arg Met			
65	70	75	80
Leu Gly Gln Cys Thr Gln Thr Trp His Arg Val Arg Lys Thr Thr Gln			
	85	90	95
Glu Gln Leu Lys Arg Asn Val Arg Phe His Ala Phe Ile Ser Tyr Ser			
	100	105	110
Glu His Asp Ser Leu Trp Val Lys Asn Glu Leu Ile Pro Asn Leu Glu			
	115	120	125
Lys Glu Asp Gly Ser Ile Leu Ile Cys Leu Tyr Glu Ser Tyr Phe Asp			
	130	135	140
Pro Gly Lys Ser Ile Ser Glu Asn Ile Val Ser Phe Ile Glu Lys Ser			
145	150	155	160
Tyr Lys Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Asn Glu Trp			





65		70		75		80	
gtg cag gct gcc gtg ccc ggt ctg ccc agc cgg gtg aag tgt ggc agt							288
Val Gln Ala Ala Val Pro Gly Leu Pro Ser Arg Val Lys Cys Gly Ser							
		85		90		95	
ccg ggc cag ctc cag ggc ctc agc atc ttt gca cag gac ctg cgc ctc							336
Pro Gly Gln Leu Gln Gly Leu Ser Ile Phe Ala Gln Asp Leu Arg Leu							
		100		105		110	
tgc ctg gat gag gcc ctc tcc tgg gac tgt ttc gcc ctc tcg ctg ctg							384
Cys Leu Asp Glu Ala Leu Ser Trp Asp Cys Phe Ala Leu Ser Leu Leu							
		115		120		125	
gct gtg gct ctg ggc ctg ggt gtg ccc atg ctg cat cac ctc tgt ggc							432
Ala Val Ala Leu Gly Leu Gly Val Pro Met Leu His His Leu Cys Gly							
		130		135		140	
tgg gac ctc tgg tac tgc ttc cac ctg tgc ctg gcc tgg ctt ccc tgg							480
Trp Asp Leu Trp Tyr Cys Phe His Leu Cys Leu Ala Trp Leu Pro Trp							
		145		150		155	160
cgg ggg cgg caa agt ggg cga gat gag gat gcc ctg ccc tac gat gcc							528
Arg Gly Arg Gln Ser Gly Arg Asp Glu Asp Ala Leu Pro Tyr Asp Ala							
		165		170		175	
ttc gtg gtc ttc gac aaa acg cag agc gca gtg gca gac tgg gtg tac							576
Phe Val Val Phe Asp Lys Thr Gln Ser Ala Val Ala Asp Trp Val Tyr							
		180		185		190	
aac gag ctt cgg ggg cag ctg gag gag tgc cgt ggg cgc tgg gca ctc							624
Asn Glu Leu Arg Gly Gln Leu Glu Glu Cys Arg Gly Arg Trp Ala Leu							
		195		200		205	
cgc ctg tgc ctg gag gaa cgc gac tgg ctg cct ggc aaa acc ctc ttt							672
Arg Leu Cys Leu Glu Glu Arg Asp Trp Leu Pro Gly Lys Thr Leu Phe							
		210		215		220	
gag aac ctg tgg gcc tcg gtc tat ggc agc cgc aag acg ctg ttt gtg							720
Glu Asn Leu Trp Ala Ser Val Tyr Gly Ser Arg Lys Thr Leu Phe Val							
		225		230		235	240
ctg gcc cac acg gac cgg gtc agt ggt ctc ttg cgc gcc agc ttc ctg							768
Leu Ala His Thr Asp Arg Val Ser Gly Leu Leu Arg Ala Ser Phe Leu							
		245		250		255	
ctg gcc cag cag cgc ctg ctg gag gac cgc aag gac gtc gtg gtg ctg							816
Leu Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu							
		260		265		270	
gtg atc ctg agc cct gac ggc cgc cgc tcc cgc tac gag cgg ctg cgc							864
Val Ile Leu Ser Pro Asp Gly Arg Arg Ser Arg Tyr Glu Arg Leu Arg							
		275		280		285	
cag cgc ctc tgc cgc cag agt gtc ctc ctc tgg ccc cac cag ccc agt							912
Gln Arg Leu Cys Arg Gln Ser Val Leu Leu Trp Pro His Gln Pro Ser							
		290		295		300	
ggt cag cgc agc ttc tgg gcc cag ctg ggc atg gcc ctg acc agg gac							960
Gly Gln Arg Ser Phe Trp Ala Gln Leu Gly Met Ala Leu Thr Arg Asp							
		305		310		315	320

aac cac cac ttc tat aac cgg aac ttc tgc cag gga ccc acg gcc gaa 1008  
 Asn His His Phe Tyr Asn Arg Asn Phe Cys Gln Gly Pro Thr Ala Glu  
 325 330 335  
 tagccgtgag ccggaatcct gcacgggtgcc acctccacac tcacctcacc tctgcctgcc 1068  
 tgggtctgacc ctcccttgct cgctccctc accccacacc tgacacagag caggcactca 1128  
 ataaatgcta ccgaaggcta aaaaaaaaaa aaaaaaaaaa aacca 1173

<210> 34  
 <211> 336  
 <212> PRT  
 <213> Homo sapiens

<400> 34

Leu Pro Ala Gly Thr Arg Leu Arg Arg Leu Asp Val Ser Cys Asn Ser  
 1 5 10 15

Ile Ser Phe Val Ala Pro Gly Phe Phe Ser Lys Ala Lys Glu Leu Arg  
 20 25 30

Glu Leu Asn Leu Ser Ala Asn Ala Leu Lys Thr Val Asp His Ser Trp  
 35 40 45

Phe Gly Pro Leu Ala Ser Ala Leu Gln Ile Leu Asp Val Ser Ala Asn  
 50 55 60

Pro Leu His Cys Ala Cys Gly Ala Ala Phe Met Asp Phe Leu Leu Glu  
 65 70 75 80

Val Gln Ala Ala Val Pro Gly Leu Pro Ser Arg Val Lys Cys Gly Ser  
 85 90 95

Pro Gly Gln Leu Gln Gly Leu Ser Ile Phe Ala Gln Asp Leu Arg Leu  
 100 105 110

Cys Leu Asp Glu Ala Leu Ser Trp Asp Cys Phe Ala Leu Ser Leu Leu  
 115 120 125

Ala Val Ala Leu Gly Leu Gly Val Pro Met Leu His His Leu Cys Gly  
 130 135 140

Trp Asp Leu Trp Tyr Cys Phe His Leu Cys Leu Ala Trp Leu Pro Trp  
 145 150 155 160

Arg Gly Arg Gln Ser Gly Arg Asp Glu Asp Ala Leu Pro Tyr Asp Ala  
 165 170 175

Phe Val Val Phe Asp Lys Thr Gln Ser Ala Val Ala Asp Trp Val Tyr  
180 185 190

Asn Glu Leu Arg Gly Gln Leu Glu Glu Cys Arg Gly Arg Trp Ala Leu  
195 200 205

Arg Leu Cys Leu Glu Glu Arg Asp Trp Leu Pro Gly Lys Thr Leu Phe  
210 215 220

Glu Asn Leu Trp Ala Ser Val Tyr Gly Ser Arg Lys Thr Leu Phe Val  
225 230 235 240

Leu Ala His Thr Asp Arg Val Ser Gly Leu Leu Arg Ala Ser Phe Leu  
245 250 255

Leu Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu  
260 265 270

Val Ile Leu Ser Pro Asp Gly Arg Arg Ser Arg Tyr Glu Arg Leu Arg  
275 280 285

Gln Arg Leu Cys Arg Gln Ser Val Leu Leu Trp Pro His Gln Pro Ser  
290 295 300

Gly Gln Arg Ser Phe Trp Ala Gln Leu Gly Met Ala Leu Thr Arg Asp  
305 310 315 320

Asn His His Phe Tyr Asn Arg Asn Phe Cys Gln Gly Pro Thr Ala Glu  
325 330 335

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cgtcccgcta tgtgcgactg cgccagcgtc tctgccgcca gagtgtgctc ttctggcccc 180  
agcgacccaa cgggcagggg ggcttctggg ccagctgag tacagccctg actagggaca 240  
accgccatt ctataaccag aacttctgcc ggggacctac agcagaatag ctgagagcaa 300  
cagctggaaa cagctgcac ttcatgtctg gttcccagat tgctctgcct gccttgcctc 360  
gtcttactac accgctattt ggcaagtgcg caatatatgc taccaagcca ccaggccccac 420

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<210> 36  
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 <212> DNA  
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 Met Leu Thr Cys Ile Phe Leu Leu Ile Ser Gly Ser Cys Glu Leu Cys  
 -15 -10 -5

gcc gaa gaa aat ttt tct aga agc tat cct tgt gat gag aaa aag caa 96  
 Ala Glu Glu Asn Phe Ser Arg Ser Tyr Pro Cys Asp Glu Lys Lys Gln  
 -1 1 5 10 15

aat gac tca gtt att gca gag tgc agc aat cgt cga cta cag gaa gtt 144  
 Asn Asp Ser Val Ile Ala Glu Cys Ser Asn Arg Arg Leu Gln Glu Val  
 20 25 30

ccc caa acg gtg ggc aaa tat gtg aca gaa cta gac ctg tct gat aat 192  
 Pro Gln Thr Val Gly Lys Tyr Val Thr Glu Leu Asp Leu Ser Asp Asn  
 35 40 45

ttc atc aca cac ata acg aat gaa tca ttt caa ggg ctg caa aat ctc 240  
 Phe Ile Thr His Ile Thr Asn Glu Ser Phe Gln Gly Leu Gln Asn Leu  
 50 55 60

act aaa ata aat cta aac cac aac ccc aat gta cag cac cag aac gga 288  
 Thr Lys Ile Asn Leu Asn His Asn Pro Asn Val Gln His Gln Asn Gly  
 65 70 75

aat ccc ggt ata caa tca aat ggc ttg aat atc aca gac ggg gca ttc 336  
 Asn Pro Gly Ile Gln Ser Asn Gly Leu Asn Ile Thr Asp Gly Ala Phe  
 80 85 90 95

ctc aac cta aaa aac cta agg gag tta ctg ctt gaa gac aac cag tta 384  
 Leu Asn Leu Lys Asn Leu Arg Glu Leu Leu Leu Glu Asp Asn Gln Leu  
 100 105 110

ccc caa ata ccc tct ggt ttg cca gag tct ttg aca gaa ctt agt cta 432  
 Pro Gln Ile Pro Ser Gly Leu Pro Glu Ser Leu Thr Glu Leu Ser Leu  
 115 120 125

att caa aac aat ata tac aac ata act aaa gag ggc att tca aga ctt 480

Ile Gln Asn Asn Ile Tyr Asn Ile Thr Lys Glu Gly Ile Ser Arg Leu	
130 135 140	
ata aac ttg aaa aat ctc tat ttg gcc tgg aac tgc tat ttt aac aaa	528
Ile Asn Leu Lys Asn Leu Tyr Leu Ala Trp Asn Cys Tyr Phe Asn Lys	
145 150 155	
gtt tgc gag aaa act aac ata gaa gat gga gta ttt gaa acg ctg aca	576
Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe Glu Thr Leu Thr	
160 165 170 175	
aat ttg gag ttg cta tca cta tct ttc aat tct ctt tca cat gtg cca	624
Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu Ser His Val Pro	
180 185 190	
ccc aaa ctg cca agc tcc cta cgc aaa ctt ttt ctg agc aac acc cag	672
Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu Ser Asn Thr Gln	
195 200 205	
atc aaa tac att agt gaa gaa gat ttc aag gga ttg ata aat tta aca	720
Ile Lys Tyr Ile Ser Glu Glu Asp Phe Lys Gly Leu Ile Asn Leu Thr	
210 215 220	
tta cta gat tta agc ggg aac tgt ccg agg tgc ttc aat gcc cca ttt	768
Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe Asn Ala Pro Phe	
225 230 235	
cca tgc gtg cct tgt gat ggt ggt gct tca att aat ata gat cgt ttt	816
Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn Ile Asp Arg Phe	
240 245 250 255	
gct ttt caa aac ttg acc caa ctt cga tac cta aac ctc tct agc act	864
Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn Leu Ser Ser Thr	
260 265 270	
tcc ctc agg aag att aat gct gcc tgg ttt aaa aat atg cct cat ctg	912
Ser Leu Arg Lys Ile Asn Ala Ala Trp Phe Lys Asn Met Pro His Leu	
275 280 285	
aag gtg ctg gat ctt gaa ttc aac tat tta gtg gga gaa ata gcc tct	960
Lys Val Leu Asp Leu Glu Phe Asn Tyr Leu Val Gly Glu Ile Ala Ser	
290 295 300	
ggg gca ttt tta acg atg ctg ccc cgc tta gaa ata ctt gac ttg tct	1008
Gly Ala Phe Leu Thr Met Leu Pro Arg Leu Glu Ile Leu Asp Leu Ser	
305 310 315	
ttt aac tat ata aag ggg agt tat cca cag cat att aat att tcc aga	1056
Phe Asn Tyr Ile Lys Gly Ser Tyr Pro Gln His Ile Asn Ile Ser Arg	
320 325 330 335	
aac ttc tct aaa ctt ttg tct cta cgg gca ttg cat tta aga ggt tat	1104
Asn Phe Ser Lys Leu Leu Ser Leu Arg Ala Leu His Leu Arg Gly Tyr	
340 345 350	
gtg ttc cag gaa ctc aga gaa gat gat ttc cag ccc ctg atg cag ctt	1152
Val Phe Gln Glu Leu Arg Glu Asp Asp Phe Gln Pro Leu Met Gln Leu	
355 360 365	
cca aac tta tcg act atc aac ttg ggt att aat ttt att aag caa atc	1200
Pro Asn Leu Ser Thr Ile Asn Leu Gly Ile Asn Phe Ile Lys Gln Ile	

370					375					380						
gat	ttc	aaa	ctt	ttc	caa	aat	ttc	tcc	aat	ctg	gaa	att	att	tac	ttg	1248
Asp	Phe	Lys	Leu	Phe	Gln	Asn	Phe	Ser	Asn	Leu	Glu	Ile	Ile	Tyr	Leu	
385				390				395								
tca	gaa	aac	aga	ata	tca	ccg	ttg	gta	aaa	gat	acc	cgg	cag	agt	tat	1296
Ser	Glu	Asn	Arg	Ile	Ser	Pro	Leu	Val	Lys	Asp	Thr	Arg	Gln	Ser	Tyr	
400				405				410						415		
gca	aat	agt	tcc	tct	ttt	caa	cgt	cat	atc	cgg	aaa	cga	cgc	tca	aca	1344
Ala	Asn	Ser	Ser	Ser	Phe	Gln	Arg	His	Ile	Arg	Lys	Arg	Arg	Ser	Thr	
				420				425						430		
gat	ttt	gag	ttt	gac	cca	cat	tcg	aac	ttt	tat	cat	ttc	acc	cgt	cct	1392
Asp	Phe	Glu	Phe	Asp	Pro	His	Ser	Asn	Phe	Tyr	His	Phe	Thr	Arg	Pro	
		435				440						445				
tta	ata	aag	cca	caa	tgt	gct	gct	tat	gga	aaa	gcc	tta	gat	tta	agc	1440
Leu	Ile	Lys	Pro	Gln	Cys	Ala	Ala	Tyr	Gly	Lys	Ala	Leu	Asp	Leu	Ser	
		450				455						460				
ctc	aac	agt	att	ttc	ttc	att	ggg	cca	aac	caa	ttt	gaa	aat	ctt	cct	1488
Leu	Asn	Ser	Ile	Phe	Phe	Ile	Gly	Pro	Asn	Gln	Phe	Glu	Asn	Leu	Pro	
465				470						475						
gac	att	gcc	tgt	tta	aat	ctg	tct	gca	aat	agc	aat	gct	caa	gtg	tta	1536
Asp	Ile	Ala	Cys	Leu	Asn	Leu	Ser	Ala	Asn	Ser	Asn	Ala	Gln	Val	Leu	
480				485				490						495		
agt	gga	act	gaa	ttt	tca	gcc	att	cct	cat	gtc	aaa	tat	ttg	gat	ttg	1584
Ser	Gly	Thr	Glu	Phe	Ser	Ala	Ile	Pro	His	Val	Lys	Tyr	Leu	Asp	Leu	
		500				505						510				
aca	aac	aat	aga	cta	gac	ttt	gat	aat	gct	agt	gct	ctt	act	gaa	ttg	1632
Thr	Asn	Asn	Arg	Leu	Asp	Phe	Asp	Asn	Ala	Ser	Ala	Leu	Thr	Glu	Leu	
		515				520						525				
tcc	gac	ttg	gaa	gtt	cta	gat	ctc	agc	tat	aat	tca	cac	tat	ttc	aga	1680
Ser	Asp	Leu	Glu	Val	Leu	Asp	Leu	Ser	Tyr	Asn	Ser	His	Tyr	Phe	Arg	
530						535						540				
ata	gca	ggc	gta	aca	cat	cat	cta	gaa	ttt	att	caa	aat	ttc	aca	aat	1728
Ile	Ala	Gly	Val	Thr	His	His	Leu	Glu	Phe	Ile	Gln	Asn	Phe	Thr	Asn	
545				550				555								
cta	aaa	gtt	tta	aac	ttg	agc	cac	aac	aac	att	tat	act	tta	aca	gat	1776
Leu	Lys	Val	Leu	Asn	Leu	Ser	His	Asn	Asn	Ile	Tyr	Thr	Leu	Thr	Asp	
560				565				570						575		
aag	tat	aac	ctg	gaa	agc	aag	tcc	ctg	gta	gaa	tta	gtt	ttc	agt	ggc	1824
Lys	Tyr	Asn	Leu	Glu	Ser	Lys	Ser	Leu	Val	Glu	Leu	Val	Phe	Ser	Gly	
		580				585						590				
aat	cgc	ctt	gac	att	ttg	tgg	aat	gat	gat	gac	aac	agg	tat	atc	tcc	1872
Asn	Arg	Leu	Asp	Ile	Leu	Trp	Asn	Asp	Asp	Asp	Asn	Arg	Tyr	Ile	Ser	
		595				600						605				
att	ttc	aaa	ggg	ctc	aag	aat	ctg	aca	cgt	ctg	gat	tta	tcc	ctt	aat	1920
Ile	Phe	Lys	Gly	Leu	Lys	Asn	Leu	Thr	Arg	Leu	Asp	Leu	Ser	Leu	Asn	
610				615				620								

agg ctc aag cac atc cca aat gaa gca ttc ctt aat ttg cca gcg agt Arg Leu Lys His Ile Pro Asn Glu Ala Phe Leu Asn Leu Pro Ala Ser 625 630 635	1968
ctc act gaa cta cat ata aat gat aat atg tta aag ttt ttt aac tgg Leu Thr Glu Leu His Ile Asn Asp Asn Met Leu Lys Phe Phe Asn Trp 640 645 650 655	2016
aca tta ctc cag cag ttt cct cgt ctc gag ttg ctt gac tta cgt gga Thr Leu Leu Gln Gln Phe Pro Arg Leu Glu Leu Leu Asp Leu Arg Gly 660 665 670	2064
aac aaa cta ctc ttt tta act gat agc cta tct gac ttt aca tct tcc Asn Lys Leu Leu Phe Leu Thr Asp Ser Leu Ser Asp Phe Thr Ser Ser 675 680 685	2112
ctt cgg aca ctg ctg ctg agt cat aac agg att tcc cac cta ccc tct Leu Arg Thr Leu Leu Leu Ser His Asn Arg Ile Ser His Leu Pro Ser 690 695 700	2160
ggc ttt ctt tct gaa gtc agt agt ctg aag cac ctc gat tta agt tcc Gly Phe Leu Ser Glu Val Ser Ser Leu Lys His Leu Asp Leu Ser Ser 705 710 715	2208
aat ctg cta aaa aca atm aac aaa tcc gca ctt gaa act aag acc acc Asn Leu Leu Lys Thr Xaa Asn Lys Ser Ala Leu Glu Thr Lys Thr Thr 720 725 730 735	2256
acc aaa tta tct atg ttg gaa cta cac gga aac ccc ttt gaa tgc acc Thr Lys Leu Ser Met Leu Glu Leu His Gly Asn Pro Phe Glu Cys Thr 740 745 750	2304
tgt gac att gga gat ttc cga aga tgg atg gat gaa cat ctg aat gtc Cys Asp Ile Gly Asp Phe Arg Arg Trp Met Asp Glu His Leu Asn Val 755 760 765	2352
aaa att ccc aga ctg gta gat gtc att tgt gcc agt cct ggg gat caa Lys Ile Pro Arg Leu Val Asp Val Ile Cys Ala Ser Pro Gly Asp Gln 770 775 780	2400
aga ggg aag agt att gtg agt ctg gag cta aca act tgt gtt tca gat Arg Gly Lys Ser Ile Val Ser Leu Glu Leu Thr Thr Cys Val Ser Asp 785 790 795	2448
gtc act gca gtg ata tta ttt ttc ttc acg ttc ttt atc acc acc atg Val Thr Ala Val Ile Leu Phe Phe Phe Thr Phe Phe Ile Thr Thr Met 800 805 810 815	2496
gtt atg ttg gct gcc ctg gct cac cat ttg ttt tac tgg gat gtt tgg Val Met Leu Ala Ala Leu Ala His His Leu Phe Tyr Trp Asp Val Trp 820 825 830	2544
ttt ata tat aat gtg tgt tta gct aag tta aaa ggc tac agg tct ctt Phe Ile Tyr Asn Val Cys Leu Ala Lys Leu Lys Gly Tyr Arg Ser Leu 835 840 845	2592
tcc aca tcc caa act ttc tat gat gct tac att tct tat gac acc aaa Ser Thr Ser Gln Thr Phe Tyr Asp Ala Tyr Ile Ser Tyr Asp Thr Lys 850 855 860	2640

gat gcc tct gtt act gac tgg gtg ata aat gag ctg cgc tac cac ctt Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg Tyr His Leu 865 870 875	2688
gaa gag agc cga gac aaa aac gtt ctc ctt tgt cta gag gag agg gat Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu Glu Arg Asp 880 885 890 895	2736
tgg gac ccg gga ttg gcc atc atc gac aac ctc atg cag agc atc aac Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln Ser Ile Asn 900 905 910	2784
caa agc aag aaa aca gta ttt gtt tta acc aaa aaa tat gca aaa agc Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr Ala Lys Ser 915 920 925	2832
tgg aac ttt aaa aca gct ttt tac ttg gcc ttg cag agg cta atg ggt Trp Asn Phe Lys Thr Ala Phe Tyr Leu Ala Leu Gln Arg Leu Met Gly 930 935 940	2880
gag aac atg gat gtg att ata ttt atc ctg ctg gag cca gtg tta cag Glu Asn Met Asp Val Ile Ile Phe Ile Leu Leu Glu Pro Val Leu Gln 945 950 955	2928
cat tct ccg tat ttg agg cta cgg cag cgg atc tgt aag agc tcc atc His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys Ser Ser Ile 960 965 970 975	2976
ctc cag tgg cct gac aac ccg aag gca gaa ggc ttg ttt tgg caa act Leu Gln Trp Pro Asp Asn Pro Lys Ala Glu Gly Leu Phe Trp Gln Thr 980 985 990	3024
ctg aga aat gtg gtc ttg act gaa aat gat tca cgg tat aac aat atg Leu Arg Asn Val Val Leu Thr Glu Asn Asp Ser Arg Tyr Asn Asn Met 995 1000 1005	3072
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<210> 37  
 <211> 1032  
 <212> PRT  
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<220>  
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 <223> The 'Xaa' at location 725 stands for Ile.

<400> 37

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Ala Glu Glu Asn Phe Ser Arg Ser Tyr Pro Cys Asp Glu Lys Lys Gln
-1 1 5 10 15



Asn Asp Ser Val Ile Ala Glu Cys Ser Asn Arg Arg Leu Gln Glu Val  
 20 25 30

Pro Gln Thr Val Gly Lys Tyr Val Thr Glu Leu Asp Leu Ser Asp Asn  
 35 40 45

Phe Ile Thr His Ile Thr Asn Glu Ser Phe Gln Gly Leu Gln Asn Leu  
 50 55 60

Thr Lys Ile Asn Leu Asn His Asn Pro Asn Val Gln His Gln Asn Gly  
 65 70 75

Asn Pro Gly Ile Gln Ser Asn Gly Leu Asn Ile Thr Asp Gly Ala Phe  
 80 85 90 95

Leu Asn Leu Lys Asn Leu Arg Glu Leu Leu Leu Glu Asp Asn Gln Leu  
 100 105 110

Pro Gln Ile Pro Ser Gly Leu Pro Glu Ser Leu Thr Glu Leu Ser Leu  
 115 120 125

Ile Gln Asn Asn Ile Tyr Asn Ile Thr Lys Glu Gly Ile Ser Arg Leu  
 130 135 140

Ile Asn Leu Lys Asn Leu Tyr Leu Ala Trp Asn Cys Tyr Phe Asn Lys  
 145 150 155

Val Cys Glu Lys Thr Asn Ile Glu Asp Gly Val Phe Glu Thr Leu Thr  
 160 165 170 175

Asn Leu Glu Leu Leu Ser Leu Ser Phe Asn Ser Leu Ser His Val Pro  
 180 185 190

Pro Lys Leu Pro Ser Ser Leu Arg Lys Leu Phe Leu Ser Asn Thr Gln  
 195 200 205

Ile Lys Tyr Ile Ser Glu Glu Asp Phe Lys Gly Leu Ile Asn Leu Thr  
 210 215 220

Leu Leu Asp Leu Ser Gly Asn Cys Pro Arg Cys Phe Asn Ala Pro Phe  
 225 230 235

Pro Cys Val Pro Cys Asp Gly Gly Ala Ser Ile Asn Ile Asp Arg Phe  
 240 245 250 255

Ala Phe Gln Asn Leu Thr Gln Leu Arg Tyr Leu Asn Leu Ser Ser Thr

260										265					270				
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Lys	Val	Leu	Asp	Leu	Glu	Phe	Asn	Tyr	Leu	Val	Gly	Glu	Ile	Ala	Ser				
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Gly	Ala	Phe	Leu	Thr	Met	Leu	Pro	Arg	Leu	Glu	Ile	Leu	Asp	Leu	Ser				
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Asn	Phe	Ser	Lys	Leu	Leu	Ser	Leu	Arg	Ala	Leu	His	Leu	Arg	Gly	Tyr				
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Pro	Asn	Leu	Ser	Thr	Ile	Asn	Leu	Gly	Ile	Asn	Phe	Ile	Lys	Gln	Ile				
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Asp	Phe	Lys	Leu	Phe	Gln	Asn	Phe	Ser	Asn	Leu	Glu	Ile	Ile	Tyr	Leu				
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Ser	Glu	Asn	Arg	Ile	Ser	Pro	Leu	Val	Lys	Asp	Thr	Arg	Gln	Ser	Tyr				
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Ala	Asn	Ser	Ser	Ser	Phe	Gln	Arg	His	Ile	Arg	Lys	Arg	Arg	Ser	Thr				
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Asp	Phe	Glu	Phe	Asp	Pro	His	Ser	Asn	Phe	Tyr	His	Phe	Thr	Arg	Pro				
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Leu	Ile	Lys	Pro	Gln	Cys	Ala	Ala	Tyr	Gly	Lys	Ala	Leu	Asp	Leu	Ser				
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Asp	Ile	Ala	Cys	Leu	Asn	Leu	Ser	Ala	Asn	Ser	Asn	Ala	Gln	Val	Leu				
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Leu Lys Val Leu Asn Leu Ser His Asn Asn Ile Tyr Thr Leu Thr Asp  
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Asn Arg Leu Asp Ile Leu Trp Asn Asp Asp Asp Asn Arg Tyr Ile Ser  
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Ile Phe Lys Gly Leu Lys Asn Leu Thr Arg Leu Asp Leu Ser Leu Asn  
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Leu Thr Glu Leu His Ile Asn Asp Asn Met Leu Lys Phe Phe Asn Trp  
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675 680 685

Leu Arg Thr Leu Leu Leu Ser His Asn Arg Ile Ser His Leu Pro Ser  
690 695 700

Gly Phe Leu Ser Glu Val Ser Ser Leu Lys His Leu Asp Leu Ser Ser  
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Asn Leu Leu Lys Thr Xaa Asn Lys Ser Ala Leu Glu Thr Lys Thr Thr  
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Thr Lys Leu Ser Met Leu Glu Leu His Gly Asn Pro Phe Glu Cys Thr  
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Cys Asp Ile Gly Asp Phe Arg Arg Trp Met Asp Glu His Leu Asn Val  
755 760 765

Lys Ile Pro Arg Leu Val Asp Val Ile Cys Ala Ser Pro Gly Asp Gln  
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Arg Gly Lys Ser Ile Val Ser Leu Glu Leu Thr Thr Cys Val Ser Asp  
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Val Thr Ala Val Ile Leu Phe Phe Phe Thr Phe Phe Ile Thr Thr Met  
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Val Met Leu Ala Ala Leu Ala His His Leu Phe Tyr Trp Asp Val Trp  
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Phe Ile Tyr Asn Val Cys Leu Ala Lys Leu Lys Gly Tyr Arg Ser Leu  
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Ser Thr Ser Gln Thr Phe Tyr Asp Ala Tyr Ile Ser Tyr Asp Thr Lys  
850 855 860

Asp Ala Ser Val Thr Asp Trp Val Ile Asn Glu Leu Arg Tyr His Leu  
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Glu Glu Ser Arg Asp Lys Asn Val Leu Leu Cys Leu Glu Glu Arg Asp  
880 885 890 895

Trp Asp Pro Gly Leu Ala Ile Ile Asp Asn Leu Met Gln Ser Ile Asn  
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Gln Ser Lys Lys Thr Val Phe Val Leu Thr Lys Lys Tyr Ala Lys Ser  
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Trp Asn Phe Lys Thr Ala Phe Tyr Leu Ala Leu Gln Arg Leu Met Gly  
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His Ser Pro Tyr Leu Arg Leu Arg Gln Arg Ile Cys Lys Ser Ser Ile  
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 Arg Ile Gln Gln Leu Asp Leu Lys Thr Phe Glu Phe Asn Lys Glu Leu  
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 Arg Tyr Leu Asp Leu Ser Asn Asn Arg Leu Lys Ser Val Thr Trp Tyr  
 80 85 90 95

tta ctg gca ggt ctc agg tat tta gat ctt tct ttt aat gac ttt gac 500

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acc	atg	cct	atc	tgt	gag	gaa	gct	ggc	aac	atg	tca	cac	ctg	gaa	atc		548
Thr	Met	Pro	Ile	Cys	Glu	Glu	Ala	Gly	Asn	Met	Ser	His	Leu	Glu	Ile		
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cta	ggt	ttg	agt	ggg	gca	aaa	ata	caa	aaa	tca	gat	ttc	cag	aaa	att		596
Leu	Gly	Leu	Ser	Gly	Ala	Lys	Ile	Gln	Lys	Ser	Asp	Phe	Gln	Lys	Ile		
		130					135					140					
gct	cat	ctg	cat	cta	aat	act	gtc	ttc	tta	gga	ttc	aga	act	ctt	cct		644
Ala	His	Leu	His	Leu	Asn	Thr	Val	Phe	Leu	Gly	Phe	Arg	Thr	Leu	Pro		
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His	Tyr	Glu	Glu	Gly	Ser	Leu	Pro	Ile	Leu	Asn	Thr	Thr	Lys	Leu	His		
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atc	aag	act	tca	aaa	ata	tta	gaa	atg	aca	aat	ata	gat	ggc	aaa	agc		788
Ile	Lys	Thr	Ser	Lys	Ile	Leu	Glu	Met	Thr	Asn	Ile	Asp	Gly	Lys	Ser		
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caa	ttt	gta	agt	tat	gaa	atg	caa	cga	aat	ctt	agt	tta	gaa	aat	gct		836
Gln	Phe	Val	Ser	Tyr	Glu	Met	Gln	Arg	Asn	Leu	Ser	Leu	Glu	Asn	Ala		
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Lys	Thr	Ser	Val	Leu	Leu	Leu	Asn	Lys	Val	Asp	Leu	Leu	Trp	Asp	Asp		
	225					230					235						
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Leu	Phe	Leu	Ile	Leu	Gln	Phe	Val	Trp	His	Thr	Ser	Val	Glu	His	Phe		
240					245				250						255		
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Gln	Ile	Arg	Asn	Val	Thr	Phe	Gly	Gly	Lys	Ala	Tyr	Leu	Asp	His	Asn		
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Ser	Phe	Asp	Tyr	Ser	Asn	Thr	Val	Met	Arg	Thr	Ile	Lys	Leu	Glu	His		
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Val	His	Phe	Arg	Val	Phe	Tyr	Ile	Gln	Gln	Asp	Lys	Ile	Tyr	Leu	Leu		
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ttg	acc	aaa	atg	gac	ata	gaa	aac	ctg	aca	ata	tca	aat	gca	caa	atg		1124
Leu	Thr	Lys	Met	Asp	Ile	Glu	Asn	Leu	Thr	Ile	Ser	Asn	Ala	Gln	Met		
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cca	cac	atg	ctt	ttc	ccg	aat	tat	cct	acg	aaa	ttc	caa	tat	tta	aat		1172
Pro	His	Met	Leu	Phe	Pro	Asn	Tyr	Pro	Thr	Lys	Phe	Gln	Tyr	Leu	Asn		
320					325					330					335		
ttt	gcc	aat	aat	atc	tta	aca	gac	gag	ttg	ttt	aaa	aga	act	atc	caa		1220
Phe	Ala	Asn	Asn	Ile	Leu	Thr	Asp	Glu	Leu	Phe	Lys	Arg	Thr	Ile	Gln		

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ctg	cct	cac	ttg	aaa	act	ctc	att	ttg	aat	ggc	aat	aaa	ctg	gag	aca		1268			
Leu	Pro	His	Leu	Lys	Thr	Leu	Ile	Leu	Asn	Gly	Asn	Lys	Leu	Glu	Thr					
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Leu	Ser	Leu	Val	Ser	Cys	Phe	Ala	Asn	Asn	Thr	Pro	Leu	Glu	His	Leu					
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Trp	Pro	Glu	Thr	Val	Val	Asn	Met	Asn	Leu	Ser	Tyr	Asn	Lys	Leu	Ser					
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Asp	Ser	Val	Phe	Arg	Cys	Leu	Pro	Lys	Ser	Ile	Gln	Ile	Leu	Asp	Leu					
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aat	aat	aac	caa	atc	caa	act	gta	cct	aaa	gag	act	att	cat	ctg	atg		1508			
Asn	Asn	Asn	Gln	Ile	Gln	Thr	Val	Pro	Lys	Glu	Thr	Ile	His	Leu	Met					
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Ala	Leu	Arg	Glu	Leu	Asn	Ile	Ala	Phe	Asn	Phe	Leu	Thr	Asp	Leu	Pro					
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gga	tgc	agt	cat	ttc	agt	aga	ctt	tca	gtt	ctg	aac	att	gaa	atg	aac		1604			
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Lys	Thr	Leu	Asn	Ala	Gly	Arg	Asn	Pro	Phe	Arg	Cys	Thr	Cys	Glu	Leu					
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Trp	Ser	Asp	Ser	Tyr	Thr	Cys	Glu	Tyr	Pro	Leu	Asn	Leu	Arg	Gly	Thr					
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80 85 90

Trp Tyr Leu Leu Ala Gly Leu Arg Tyr Leu Asp Leu Ser Phe Asn Asp  
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Phe Asp Thr Met Pro Ile Cys Glu Glu Ala Gly Asn Met Ser His Leu  
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Lys Ile Ala His Leu His Leu Asn Thr Val Phe Leu Gly Phe Arg Thr  
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Asp Gly Ile Lys Thr Ser Lys Ile Leu Glu Met Thr Asn Ile Asp Gly  
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Lys Ser Gln Phe Val Ser Tyr Glu Met Gln Arg Asn Leu Ser Leu Glu  
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His Phe Gln Ile Arg Asn Val Thr Phe Gly Gly Lys Ala Tyr Leu Asp  
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270 275 280 285

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Glu Leu Lys Asn Phe Ile Gln Leu Glu Thr Tyr Ser Glu Val Met Met  
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Gln Glu Gln Leu Lys Arg Asn Val Arg Phe His Ala Phe Ile Ser Tyr  
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Glu Lys Glu Asp Gly Ser Ile Leu Ile Cys Leu Tyr Glu Ser Tyr Phe

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Asp Pro Gly Lys Ser Ile Ser Glu Asn Ile Val Ser Phe Ile Glu Lys		
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Ser Tyr Lys Ser Ile Phe Val Leu Ser Pro Asn Phe Val Gln Asn Glu		
670	675	680 685
Trp Cys His Tyr Glu Phe Tyr Phe Ala His His Asn Leu Phe His Glu		
	690	695 700
Asn Ser Asp His Ile Ile Leu Ile Leu Leu Glu Pro Ile Pro Phe Tyr		
	705	710 715
Cys Ile Pro Thr Arg Tyr His Lys Leu Lys Ala Leu Leu Glu Lys Lys		
	720	725 730
Ala Tyr Leu Glu Trp Pro Lys Asp Arg Arg Lys Cys Gly Leu Phe Trp		
	735	740 745
Ala Asn Leu Arg Ala Ala Ile Asn Val Asn Val Leu Ala Thr Arg Glu		
	750	755 760 765
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Tyr Ile Ala Glu Leu Gln Val Ser Asp Met Ser Phe Leu Ser Glu Leu  
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aca gtt ttg aga ctt tcc cat aac aga atc cag cta ctt gat tta agt 349  
Thr Val Leu Arg Leu Ser His Asn Arg Ile Gln Leu Leu Asp Leu Ser  
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gtt ttc aag ttc aac cag gat tta gaa tat ttg gat tta tct cat aat 397  
Val Phe Lys Phe Asn Gln Asp Leu Glu Tyr Leu Asp Leu Ser His Asn  
65 70 75

cag ttg caa aag ata tcc tgc cat cct att gtg agt ttc agg cat tta 445  
Gln Leu Gln Lys Ile Ser Cys His Pro Ile Val Ser Phe Arg His Leu  
80 85 90 95

gat ctc tca ttc aat gat ttc aag gcc ctg ccc atc tgt aag gaa ttt 493  
Asp Leu Ser Phe Asn Asp Phe Lys Ala Leu Pro Ile Cys Lys Glu Phe  
100 105 110

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Gly Asn Leu Ser Gln Leu Asn Phe Leu Gly Leu Ser Ala Met Lys Leu  
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caa aaa tta gat ttg ctg cca att gct cac ttg cat cta agt tat atc 589  
Gln Lys Leu Asp Leu Leu Pro Ile Ala His Leu His Leu Ser Tyr Ile  
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ctt ctg gat tta aga aat tat tat ata aaa gaa aat gag aca gaa agt 637  
Leu Leu Asp Leu Arg Asn Tyr Tyr Ile Lys Glu Asn Glu Thr Glu Ser  
145 150 155

cta caa att ctg aat gca aaa acc ctt cac ctt gtt ttt cac cca act 685  
Leu Gln Ile Leu Asn Ala Lys Thr Leu His Leu Val Phe His Pro Thr  
160 165 170 175

agt tta ttc gct atc caa gtg aac ata tca gtt aat act tta ggg tgc 733  
Ser Leu Phe Ala Ile Gln Val Asn Ile Ser Val Asn Thr Leu Gly Cys  
180 185 190

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Ile	Lys	Phe	Leu	Ser	Glu	Leu	Thr	Arg	Gly	Pro	Thr	Leu	Leu	Asn	Phe	
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Thr	Leu	Asn	His	Ile	Glu	Thr	Thr	Trp	Lys	Cys	Leu	Val	Arg	Val	Phe	
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Gln	Phe	Leu	Trp	Pro	Lys	Pro	Val	Glu	Tyr	Leu	Asn	Ile	Tyr	Asn	Leu	
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Phe	Ser	Gln	Thr	Ala	Leu	Tyr	Thr	Val	Phe	Ser	Glu	Met	Asn	Ile	Met	
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Asp	Ser	Ile	Phe	Glu	Lys	Cys	Ser	Thr	Leu	Val	Lys	Leu	Glu	Thr	Leu	
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Ile	Leu	Gln	Lys	Asn	Gly	Leu	Lys	Asp	Leu	Phe	Lys	Val	Gly	Leu	Met	
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Thr	Lys	Asp	Met	Pro	Ser	Leu	Glu	Ile	Leu	Asp	Val	Ser	Trp	Asn	Ser	
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Leu	Glu	Ser	Gly	Arg	His	Lys	Glu	Asn	Cys	Thr	Trp	Val	Glu	Ser	Ile	
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gtg	gtg	tta	aat	ttg	tct	tca	aat	atg	ctt	act	gac	tct	gtt	ttc	aga	1405
Val	Val	Leu	Asn	Leu	Ser	Ser	Asn	Met	Leu	Thr	Asp	Ser	Val	Phe	Arg	
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tgt	tta	cct	ccc	agg	atc	aag	gta	ctt	gat	ctt	cac	agc	aat	aaa	ata	1453
Cys	Leu	Pro	Pro	Arg	Ile	Lys	Val	Leu	Asp	Leu	His	Ser	Asn	Lys	Ile	
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aag	agc	gtt	cct	aaa	caa	gtc	gta	aaa	ctg	gaa	gct	ttg	caa	gaa	ctc	1501
Lys	Ser	Val	Pro	Lys	Gln	Val	Val	Lys	Leu	Glu	Ala	Leu	Gln	Glu	Leu	

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Asn Val Ala Phe Asn Ser Leu Thr Asp Leu Pro Gly Cys Gly Ser Phe																	
450 455 460																	
agc agc ctt tct gta ttg atc att gat cac aat tca gtt tcc cac cca	1597																
Ser Ser Leu Ser Val Leu Ile Ile Asp His Asn Ser Val Ser His Pro																	
465 470 475																	
tcg gct gat ttc ttc cag agc tgc cag aag atg agg tca ata aaa gca	1645																
Ser Ala Asp Phe Phe Gln Ser Cys Gln Lys Met Arg Ser Ile Lys Ala																	
480 485 490 495																	
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Gly Asp Asn Pro Phe Gln Cys Thr Cys Glu Leu Arg Glu Phe Val Lys																	
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Tyr Lys Cys Asp Tyr Pro Glu Ser Tyr Arg Gly Ser Pro Leu Lys Asp																	
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675 680 685																	

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 705 710 715

ctg aag gct ctc atg acg cag cgg act tat ttg cag tgg ccc aag gag 2365  
 Leu Lys Ala Leu Met Thr Gln Arg Thr Tyr Leu Gln Trp Pro Lys Glu  
 720 725 730 735

aaa agc aaa cgt ggg ctc ttt tgg gct aac att aga gcc gct ttt aat 2413  
 Lys Ser Lys Arg Gly Leu Phe Trp Ala Asn Ile Arg Ala Ala Phe Asn  
 740 745 750

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 755 760 765

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Glu Phe Ala Val Asp Lys Ser Lys Arg Gly Leu Ile His Val Pro Lys  
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Asp Leu Pro Leu Lys Thr Lys Val Leu Asp Met Ser Gln Asn Tyr Ile  
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Ala Glu Leu Gln Val Ser Asp Met Ser Phe Leu Ser Glu Leu Thr Val  
35 40 45

Leu Arg Leu Ser His Asn Arg Ile Gln Leu Leu Asp Leu Ser Val Phe  
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Lys Phe Asn Gln Asp Leu Glu Tyr Leu Asp Leu Ser His Asn Gln Leu  
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Gln Lys Ile Ser Cys His Pro Ile Val Ser Phe Arg His Leu Asp Leu  
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Ser Phe Asn Asp Phe Lys Ala Leu Pro Ile Cys Lys Glu Phe Gly Asn  
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Leu Ser Gln Leu Asn Phe Leu Gly Leu Ser Ala Met Lys Leu Gln Lys  
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Leu Asp Leu Leu Pro Ile Ala His Leu His Leu Ser Tyr Ile Leu Leu  
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Asp Leu Arg Asn Tyr Tyr Ile Lys Glu Asn Glu Thr Glu Ser Leu Gln  
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Ile Leu Asn Ala Lys Thr Leu His Leu Val Phe His Pro Thr Ser Leu  
165 170 175

Phe Ala Ile Gln Val Asn Ile Ser Val Asn Thr Leu Gly Cys Leu Gln  
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Leu Thr Asn Ile Lys Leu Asn Asp Asp Asn Cys Gln Val Phe Ile Lys  
195 200 205

Phe Leu Ser Glu Leu Thr Arg Gly Pro Thr Leu Leu Asn Phe Thr Leu  
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Asn His Ile Glu Thr Thr Trp Lys Cys Leu Val Arg Val Phe Gln Phe  
230 235 240

Leu Trp Pro Lys Pro Val Glu Tyr Leu Asn Ile Tyr Asn Leu Thr Ile  
245 250 255

Ile Glu Ser Ile Arg Glu Glu Asp Phe Thr Tyr Ser Lys Thr Thr Leu  
260 265 270

Lys Ala Leu Thr Ile Glu His Ile Thr Asn Gln Val Phe Leu Phe Ser  
275 280 285

Gln Thr Ala Leu Tyr Thr Val Phe Ser Glu Met Asn Ile Met Met Leu  
290 295 300 305

Thr Ile Ser Asp Thr Pro Phe Ile His Met Leu Cys Pro His Ala Pro  
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Ser Thr Phe Lys Phe Leu Asn Phe Thr Gln Asn Val Phe Thr Asp Ser  
325 330 335

Ile Phe Glu Lys Cys Ser Thr Leu Val Lys Leu Glu Thr Leu Ile Leu  
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Gln Lys Asn Gly Leu Lys Asp Leu Phe Lys Val Gly Leu Met Thr Lys  
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Asp Met Pro Ser Leu Glu Ile Leu Asp Val Ser Trp Asn Ser Leu Glu  
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Ser Gly Arg His Lys Glu Asn Cys Thr Trp Val Glu Ser Ile Val Val  
390 395 400

Leu Asn Leu Ser Ser Asn Met Leu Thr Asp Ser Val Phe Arg Cys Leu  
405 410 415

Pro Pro Arg Ile Lys Val Leu Asp Leu His Ser Asn Lys Ile Lys Ser  
420 425 430

Val Pro Lys Gln Val Val Lys Leu Glu Ala Leu Gln Glu Leu Asn Val  
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Ala Phe Asn Ser Leu Thr Asp Leu Pro Gly Cys Gly Ser Phe Ser Ser  
450 455 460 465

Leu Ser Val Leu Ile Ile Asp His Asn Ser Val Ser His Pro Ser Ala  
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Asp Phe Phe Gln Ser Cys Gln Lys Met Arg Ser Ile Lys Ala Gly Asp  
485 490 495

Asn Pro Phe Gln Cys Thr Cys Glu Leu Arg Glu Phe Val Lys Asn Ile  
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Asp Gln Val Ser Ser Glu Val Leu Glu Gly Trp Pro Asp Ser Tyr Lys

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Met	Ser	Glu	Leu	Ser 550	Cys	Asn	Ile	Thr	Leu 555	Leu	Ile	Val	Thr	Ile	Gly 560
Ala	Thr	Met	Leu 565	Val	Leu	Ala	Val	Thr 570	Val	Thr	Ser	Leu	Cys 575	Ile	Tyr
Leu	Asp	Leu 580	Pro	Trp	Tyr	Leu	Arg 585	Met	Val	Cys	Gln	Trp 590	Thr	Gln	Thr
Arg 595	Arg	Arg	Ala	Arg	Asn	Ile 600	Pro	Leu	Glu	Glu	Leu 605	Gln	Arg	Asn	Leu
Gln 610	Phe	His	Ala	Phe	Ile 615	Ser	Tyr	Ser	Glu	His	Asp 620	Ser	Ala	Trp	Val 625
Lys	Ser	Glu	Leu	Val 630	Pro	Tyr	Leu	Glu	Lys 635	Glu	Asp	Ile	Gln	Ile	Cys 640
Leu	His	Glu	Arg 645	Asn	Phe	Val	Pro	Gly 650	Lys	Ser	Ile	Val	Glu 655	Asn	Ile
Ile	Asn	Cys 660	Ile	Glu	Lys	Ser	Tyr 665	Lys	Ser	Ile	Phe	Val 670	Leu	Ser	Pro
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His 690	Asn	Leu	Phe	His	Glu 695	Gly	Ser	Asn	Asn	Leu 700	Ile	Leu	Ile	Leu	Leu 705
Glu	Pro	Ile	Pro	Gln 710	Asn	Ser	Ile	Pro	Asn 715	Lys	Tyr	His	Lys	Leu 720	Lys
Ala	Leu	Met	Thr 725	Gln	Arg	Thr	Tyr	Leu 730	Gln	Trp	Pro	Lys	Glu 735	Lys	Ser
Lys	Arg	Gly 740	Leu	Phe	Trp	Ala	Asn 745	Ile	Arg	Ala	Ala	Phe 750	Asn	Met	Lys
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 His Thr Ala Leu Pro Pro Pro Gln Gly Phe Cys Arg Ser Ala Leu His  
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ccg ctg tct ctc ctg gtg cag gcc atc atg ctg gcc atg acc ctg gcc 144  
 Pro Leu Ser Leu Leu Val Gln Ala Ile Met Leu Ala Met Thr Leu Ala  
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 Leu Gly Thr Leu Pro Ala Phe Leu Pro Cys Glu Leu Gln Pro His Gly  
 1 5 10 15

ctg gtg aac tgc aac tgg ctg ttc ctg aag tct gtg ccc cac ttc tcc 240  
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atg gca gca ccc cgt ggc aat gtc acc agc ctt tcc ttg tcc tcc aac 288  
 Met Ala Ala Pro Arg Gly Asn Val Thr Ser Leu Ser Leu Ser Ser Asn  
 35 40 45

cgc atc cac cac ctc cat gat tct gac ttt gcc cac ctg ccc agc ctg 336  
 Arg Ile His His Leu His Asp Ser Asp Phe Ala His Leu Pro Ser Leu  
 50 55 60

cgg cat ctc aac ctc aag tgg aac tgc ccg ccg gtt ggc ctc agc ccc 384  
 Arg His Leu Asn Leu Lys Trp Asn Cys Pro Pro Val Gly Leu Ser Pro  
 65 70 75 80

atg cac ttc ccc tgc cac atg acc atc gag ccc agc acc ttc ttg gct 432  
 Met His Phe Pro Cys His Met Thr Ile Glu Pro Ser Thr Phe Leu Ala  
 85 90 95

gtg ccc acc ctg gaa gag cta aac ctg agc tac aac aac atc atg act 480  
 Val Pro Thr Leu Glu Glu Leu Asn Leu Ser Tyr Asn Asn Ile Met Thr  
 100 105 110

gtg cct gcg ctg ccc aaa tcc ctc ata tcc ctg tcc ctc agc cat acc 528

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Asn	Ile	Leu	Met	Leu	Asp	Ser	Ala	Ser	Leu	Ala	Gly	Leu	His	Ala	Leu		
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cgc	ttc	cta	ttc	atg	gac	ggc	aac	tgt	tat	tac	aag	aac	ccc	tgc	agg	624	
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Thr	His	Leu	Ser	Leu	Lys	Tyr	Asn	Asn	Leu	Thr	Val	Val	Pro	Arg	Asn		
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Leu	Pro	Ser	Ser	Leu	Glu	Tyr	Leu	Leu	Leu	Ser	Tyr	Asn	Arg	Ile	Val		
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Met	Glu	Cys	Pro	Arg	His	Phe	Pro	Gln	Leu	His	Pro	Asp	Thr	Phe	Ser		
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Trp	Leu	Asn	Ala	Ser	Trp	Phe	Arg	Gly	Leu	Gly	Asn	Leu	Arg	Val	Leu		
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Ser	Leu	Asp	Glu	Thr	Thr	Leu	Arg	Pro	Leu	Ala	Arg	Leu	Pro	Met	Leu		

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Gln	Thr	Leu	Arg	Leu	Gln	Met	Asn	Phe	Ile	Asn	Gln	Ala	Gln	Leu	Gly	
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Ile	Phe	Arg	Ala	Phe	Pro	Gly	Leu	Arg	Tyr	Val	Asp	Leu	Ser	Asp	Asn	
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Arg	Ile	Ser	Gly	Ala	Ser	Glu	Leu	Thr	Ala	Thr	Met	Gly	Glu	Ala	Asp	
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Val	Asp	Thr	Pro	Ser	Ser	Glu	Asp	Phe	Arg	Pro	Asn	Cys	Ser	Thr	Leu	
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Asn	Phe	Thr	Leu	Asp	Leu	Ser	Arg	Asn	Asn	Leu	Val	Thr	Val	Gln	Pro	
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Glu	Met	Phe	Ala	Gln	Leu	Ser	His	Leu	Gln	Cys	Leu	Arg	Leu	Ser	His	
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Glu	His	Ser	Phe	Thr	Glu	Leu	Pro	Arg	Leu	Glu	Ala	Leu	Asp	Leu	Ser	
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Tyr	Asn	Ser	Gln	Pro	Phe	Gly	Met	Gln	Gly	Val	Gly	His	Asn	Phe	Ser	
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Phe	Val	Ala	His	Leu	Arg	Thr	Leu	Arg	His	Leu	Ser	Leu	Ala	His	Asn	
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Ala	Leu	Asp	Phe	Ser	Gly	Asn	Ala	Leu	Gly	His	Met	Trp	Ala	Glu	Gly	
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Asp	Leu	Tyr	Leu	His	Phe	Phe	Gln	Gly	Leu	Ser	Gly	Leu	Ile	Trp	Leu	
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gcc ttc ttt aag tgg tgg agc ctc cac ttc ctg ccc aaa ctg gaa gtc Ala Phe Phe Lys Trp Trp Ser Leu His Phe Leu Pro Lys Leu Glu Val 645 650 655	2112
ctc gac ctg gca gga aac cag ctg aag gcc ctg acc aat ggc agc ctg Leu Asp Leu Ala Gly Asn Gln Leu Lys Ala Leu Thr Asn Gly Ser Leu 660 665 670	2160
cct gct ggc acc cgg ctc cgg agg ctg gat gtc agc tgc aac agc atc Pro Ala Gly Thr Arg Leu Arg Arg Leu Asp Val Ser Cys Asn Ser Ile 675 680 685	2208
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ggg cgg caa agt ggg cga gat gag gat gcc ctg ccc tac gat gcc ttc Gly Arg Gln Ser Gly Arg Asp Glu Asp Ala Leu Pro Tyr Asp Ala Phe 835 840 845	2688

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Val Val Phe Asp Lys Thr Gln Ser Ala Val Ala Asp Trp Val Tyr Asn	
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Glu Leu Arg Gly Gln Leu Glu Glu Cys Arg Gly Arg Trp Ala Leu Arg	
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Leu Cys Leu Glu Glu Arg Asp Trp Leu Pro Gly Lys Thr Leu Phe Glu	
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Asn Leu Trp Ala Ser Val Tyr Gly Ser Arg Lys Thr Leu Phe Val Leu	
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gcc cac acg gac cgg gtc agt ggt ctc ttg cgc gcc agc ttc ctg ctg	2928
Ala His Thr Asp Arg Val Ser Gly Leu Leu Arg Ala Ser Phe Leu Leu	
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Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu Val	
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Ile Leu Ser Pro Asp Gly Arg Arg Ser Arg Tyr Val Arg Leu Arg Gln	
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Gln Arg Ser Phe Trp Ala Gln Leu Gly Met Ala Leu Thr Arg Asp Asn	
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Leu Gly Thr Leu Pro Ala Phe Leu Pro Cys Glu Leu Gln Pro His Gly



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Thr	His	Leu	Ser	Leu	Lys	Tyr	Asn	Asn	Leu	Thr	Val	Val	Pro	Arg	Asn		
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Lys	Leu	Ala	Pro	Glu	Asp	Leu	Ala	Asn	Leu	Thr	Ala	Leu	Arg	Val	Leu		
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Met	Glu	Cys	Pro	Arg	His	Phe	Pro	Gln	Leu	His	Pro	Asp	Thr	Phe	Ser		
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His Leu Ser Arg Leu Glu Gly Leu Val Leu Lys Asp Ser Ser Leu Ser  
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Trp Leu Asn Ala Ser Trp Phe Arg Gly Leu Gly Asn Leu Arg Val Leu  
275 280 285

Asp Leu Ser Glu Asn Phe Leu Tyr Lys Cys Ile Thr Lys Thr Lys Ala  
290 295 300

Phe Gln Gly Leu Thr Gln Leu Arg Lys Leu Asn Leu Ser Phe Asn Tyr  
305 310 315 320

Gln Lys Arg Val Ser Phe Ala His Leu Ser Leu Ala Pro Ser Phe Gly  
325 330 335

Ser Leu Val Ala Leu Lys Glu Leu Asp Met His Gly Ile Phe Phe Arg  
340 345 350

Ser Leu Asp Glu Thr Thr Leu Arg Pro Leu Ala Arg Leu Pro Met Leu  
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Gln Thr Leu Arg Leu Gln Met Asn Phe Ile Asn Gln Ala Gln Leu Gly  
370 375 380

Ile Phe Arg Ala Phe Pro Gly Leu Arg Tyr Val Asp Leu Ser Asp Asn  
385 390 395 400

Arg Ile Ser Gly Ala Ser Glu Leu Thr Ala Thr Met Gly Glu Ala Asp  
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Gly Gly Glu Lys Val Trp Leu Gln Pro Gly Asp Leu Ala Pro Ala Pro  
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Val Asp Thr Pro Ser Ser Glu Asp Phe Arg Pro Asn Cys Ser Thr Leu  
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Asn Phe Thr Leu Asp Leu Ser Arg Asn Asn Leu Val Thr Val Gln Pro  
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Glu Met Phe Ala Gln Leu Ser His Leu Gln Cys Leu Arg Leu Ser His  
465 470 475 480

Asn Cys Ile Ser Gln Ala Val Asn Gly Ser Gln Phe Leu Pro Leu Thr  
485 490 495

Gly Leu Gln Val Leu Asp Leu Ser His Asn Lys Leu Asp Leu Tyr His  
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Glu His Ser Phe Thr Glu Leu Pro Arg Leu Glu Ala Leu Asp Leu Ser  
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Tyr Asn Ser Gln Pro Phe Gly Met Gln Gly Val Gly His Asn Phe Ser  
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Phe Val Ala His Leu Arg Thr Leu Arg His Leu Ser Leu Ala His Asn  
545 550 555 560

Asn Ile His Ser Gln Val Ser Gln Gln Leu Cys Ser Thr Ser Leu Arg  
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Ala Leu Asp Phe Ser Gly Asn Ala Leu Gly His Met Trp Ala Glu Gly  
580 585 590

Asp Leu Tyr Leu His Phe Phe Gln Gly Leu Ser Gly Leu Ile Trp Leu  
595 600 605

Asp Leu Ser Gln Asn Arg Leu His Thr Leu Leu Pro Gln Thr Leu Arg  
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Asn Leu Pro Lys Ser Leu Gln Val Leu Arg Leu Arg Asp Asn Tyr Leu  
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Ala Phe Phe Lys Trp Trp Ser Leu His Phe Leu Pro Lys Leu Glu Val  
645 650 655

Leu Asp Leu Ala Gly Asn Gln Leu Lys Ala Leu Thr Asn Gly Ser Leu  
660 665 670

Pro Ala Gly Thr Arg Leu Arg Arg Leu Asp Val Ser Cys Asn Ser Ile  
675 680 685

Ser Phe Val Ala Pro Gly Phe Phe Ser Lys Ala Lys Glu Leu Arg Glu  
690 695 700

Leu Asn Leu Ser Ala Asn Ala Leu Lys Thr Val Asp His Ser Trp Phe  
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Gly Pro Leu Ala Ser Ala Leu Gln Ile Leu Asp Val Ser Ala Asn Pro  
725 730 735

Leu His Cys Ala Cys Gly Ala Ala Phe Met Asp Phe Leu Leu Glu Val  
 740 745 750

Gln Ala Ala Val Pro Gly Leu Pro Ser Arg Val Lys Cys Gly Ser Pro  
 755 760 765

Gly Gln Leu Gln Gly Leu Ser Ile Phe Ala Gln Asp Leu Arg Leu Cys  
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Leu Asp Glu Ala Leu Ser Trp Asp Cys Phe Ala Leu Ser Leu Leu Ala  
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Val Ala Leu Gly Leu Gly Val Pro Met Leu His His Leu Cys Gly Trp  
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Asp Leu Trp Tyr Cys Phe His Leu Cys Leu Ala Trp Leu Pro Trp Arg  
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Gly Arg Gln Ser Gly Arg Asp Glu Asp Ala Leu Pro Tyr Asp Ala Phe  
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Val Val Phe Asp Lys Thr Gln Ser Ala Val Ala Asp Trp Val Tyr Asn  
 850 855 860

Glu Leu Arg Gly Gln Leu Glu Glu Cys Arg Gly Arg Trp Ala Leu Arg  
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Leu Cys Leu Glu Glu Arg Asp Trp Leu Pro Gly Lys Thr Leu Phe Glu  
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Asn Leu Trp Ala Ser Val Tyr Gly Ser Arg Lys Thr Leu Phe Val Leu  
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Ala His Thr Asp Arg Val Ser Gly Leu Leu Arg Ala Ser Phe Leu Leu  
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Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys Asp Val Val Val Leu Val  
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Ile Leu Ser Pro Asp Gly Arg Arg Ser Arg Tyr Val Arg Leu Arg Gln  
 945 950 955 960

Arg Leu Cys Arg Gln Ser Val Leu Leu Trp Pro His Gln Pro Ser Gly  
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 Asn Gly Ile Phe Phe Arg Leu Asn Lys Tyr Thr Leu Arg Trp Leu  
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 Ala Thr Pro Glu Glu Ala Asp Asp Ala Glu Gln Glu Glu Leu Leu Ser  
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 Ala Asp Pro His Pro Ala Pro Leu Ser Thr Pro Ala Ser Lys Asn Phe  
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 Met Asp Arg Cys Lys Asn Phe Lys Phe Asn Met Asp Leu Ser Arg Asn  
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 Gln Cys Leu Ser Leu Ser His Asn Ser Ile Ala Gln Ala Val Asn Gly

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Asn	Lys	Leu	Asp	Leu	Tyr	His	Glu	His	Ser	Phe	Thr	Glu	Leu	Pro	Arg					
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Leu	Arg	Pro	Gln	Asn	Leu	Asp	Asn	Leu	Pro	Lys	Ser	Leu	Lys	Leu	Leu					
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Ser	Leu	Arg	Asp	Asn	Tyr	Leu	Ser	Phe	Phe	Asn	Trp	Thr	Ser	Leu	Ser					
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ttc	cta	ccc	aac	ctg	gaa	gtc	cta	gac	ctg	gca	ggc	aac	cag	cta	aag	1056				
Phe	Leu	Pro	Asn	Leu	Glu	Val	Leu	Asp	Leu	Ala	Gly	Asn	Gln	Leu	Lys					
			340				345					350								
gcc	ctg	acc	aat	ggc	acc	ctg	cct	aat	ggc	acc	ctc	ctc	cag	aaa	ctc	1104				
Ala	Leu	Thr	Asn	Gly	Thr	Leu	Pro	Asn	Gly	Thr	Leu	Leu	Gln	Lys	Leu					
		355				360						365								
gat	gtc	agt	agc	aac	agt	atc	gtc	tct	gtg	gcc	ccc	ggc	ttc	ttt	tcc	1152				
Asp	Val	Ser	Ser	Asn	Ser	Ile	Val	Ser	Val	Ala	Pro	Gly	Phe	Phe	Ser					
	370					375				380										
aag	gcc	aag	gag	ctg	cga	gag	ctc	aac	ctt	agc	gcc	aac	gcc	ctc	aag	1200				
Lys	Ala	Lys	Glu	Leu	Arg	Glu	Leu	Asn	Leu	Ser	Ala	Asn	Ala	Leu	Lys					
385				390				395						400						
aca	gtg	gac	cac	tcc	tgg	ttt	ggg	ccc	att	gtg	atg	aac	ctg	aca	gtt	1248				
Thr	Val	Asp	His	Ser	Trp	Phe	Gly	Pro	Ile	Val	Met	Asn	Leu	Thr	Val					
			405				410						415							

cta gac gtg aga agc aac cct ctg cac tgt gcc tgt ggg gca gcc ttc Leu Asp Val Arg Ser Asn Pro Leu His Cys Ala Cys Gly Ala Ala Phe 420 425 430	1296
gta gac tta ctg ttg gag gtg cag acc aag gtg cct ggc ctg gct aat Val Asp Leu Leu Leu Glu Val Gln Thr Lys Val Pro Gly Leu Ala Asn 435 440 445	1344
ggc gtg aag tgt ggc agc ccc ggc cag ctg cag ggc cgt agc atc ttc Gly Val Lys Cys Gly Ser Pro Gly Gln Leu Gln Gly Arg Ser Ile Phe 450 455 460	1392
gcg cag gac ctg cgg ctg tgc ctg gat gag gtc ctc tct tgg gac tgc Ala Gln Asp Leu Arg Leu Cys Leu Asp Glu Val Leu Ser Trp Asp Cys 465 470 475 480	1440
ttt ggc ctt tca ctc ttg gct gtg gcc gtg ggc atg gtg gtg cct ata Phe Gly Leu Ser Leu Leu Ala Val Ala Val Gly Met Val Val Pro Ile 485 490 495	1488
ctg cac cat ctc tgc ggc tgg gac gtc tgg tac tgt ttt cat ctg tgc Leu His His Leu Cys Gly Trp Asp Val Trp Tyr Cys Phe His Leu Cys 500 505 510	1536
ctg gca tgg cta cct ttg cta gcc cgc agc cga cgc agc gcc caa act Leu Ala Trp Leu Pro Leu Leu Ala Arg Ser Arg Arg Ser Ala Gln Thr 515 520 525	1584
ctc cct tat gat gcc ttc gtg gtg ttc gat aag gca cag agc gca gtt Leu Pro Tyr Asp Ala Phe Val Val Phe Asp Lys Ala Gln Ser Ala Val 530 535 540	1632
gcc gac tgg gtg tat aac gag ctg cgg gtg cgg ctg gag gag cgg cgc Ala Asp Trp Val Tyr Asn Glu Leu Arg Val Arg Leu Glu Glu Arg Arg 545 550 555 560	1680
ggc cgc tgg gca ctc cgc ctg tgc ctg gag gac cga gat tgg ctg cct Gly Arg Trp Ala Leu Arg Leu Cys Leu Glu Asp Arg Asp Trp Leu Pro 565 570 575	1728
ggc cag acg ctc ttc gag aac ctc tgg gct tcc atc tat ggg agc cgc Gly Gln Thr Leu Phe Glu Asn Leu Trp Ala Ser Ile Tyr Gly Ser Arg 580 585 590	1776
aag act cta ttt gtg ctg gcc cac acg gac cgc gtc agt ggc ctc ctg Lys Thr Leu Phe Val Leu Ala His Thr Asp Arg Val Ser Gly Leu Leu 595 600 605	1824
cgc acc agc ttc ctg ctg gct cag cag cgc ctg ttg gaa gac cgc aag Arg Thr Ser Phe Leu Leu Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys 610 615 620	1872
gac gtg gtg gtg ttg gtg atc ctg cgt ccg gat gcc cac cgc tcc cgc Asp Val Val Val Leu Val Ile Leu Arg Pro Asp Ala His Arg Ser Arg 625 630 635 640	1920
tat gtg cga ctg cgc cag cgt ctc tgc cgc cag agt gtg ctc ttc tgg Tyr Val Arg Leu Arg Gln Arg Leu Cys Arg Gln Ser Val Leu Phe Trp 645 650 655	1968

ccc cag cag ccc aac ggg cag ggg ggc ttc tgg gcc cag ctg agt aca 2016  
 Pro Gln Gln Pro Asn Gly Gln Gly Gly Phe Trp Ala Gln Leu Ser Thr  
                   660                  665                  670

gcc ctg act agg gac aac cgc cac ttc tat aac cag aac ttc tgc cgg 2064  
 Ala Leu Thr Arg Asp Asn Arg His Phe Tyr Asn Gln Asn Phe Cys Arg  
                   675                  680                  685

gga cct aca gca gaa tagctcagag caacagctgg aaacagctgc atcttcattgt 2119  
 Gly Pro Thr Ala Glu  
                   690

ctgggtcccg agttgctctg cctgccttgc tctgtcttac tacaccgcta tttggcaagt 2179

gcgcaatata tgctaccaag ccaccaggcc cacggagcaa aggttggtctg taaagggtag 2239

ttttcttccc atgcatcttt caggagagtg aagatagaca ccaaaccac 2289

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 <212> PRT  
 <213> Mus musculus

<400> 45

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 1                  5                  10                  15

Leu Ala Ser Ser Phe Lys Asn Leu Val Ser Leu Gln Glu Leu Asn Met  
                   20                  25                  30

Asn Gly Ile Phe Phe Arg Leu Leu Asn Lys Tyr Thr Leu Arg Trp Leu  
                   35                  40                  45

Ala Asp Leu Pro Lys Leu His Thr Leu His Leu Gln Met Asn Phe Ile  
                   50                  55                  60

Asn Gln Ala Gln Leu Ser Ile Phe Gly Thr Phe Arg Ala Leu Arg Phe  
 65                  70                  75                  80

Val Asp Leu Ser Asp Asn Arg Ile Ser Gly Pro Ser Thr Leu Ser Glu  
                   85                  90                  95

Ala Thr Pro Glu Glu Ala Asp Asp Ala Glu Gln Glu Glu Leu Leu Ser  
                   100                  105                  110

Ala Asp Pro His Pro Ala Pro Leu Ser Thr Pro Ala Ser Lys Asn Phe  
                   115                  120                  125

Met Asp Arg Cys Lys Asn Phe Lys Phe Asn Met Asp Leu Ser Arg Asn  
                   130                  135                  140



Asn Leu Val Thr Ile Thr Ala Glu Met Phe Val Asn Leu Ser Arg Leu  
145 150 155 160

Gln Cys Leu Ser Leu Ser His Asn Ser Ile Ala Gln Ala Val Asn Gly  
165 170 175

Ser Gln Phe Leu Pro Leu Thr Gly Leu Gln Val Leu Asp Leu Ser His  
180 185 190

Asn Lys Leu Asp Leu Tyr His Glu His Ser Phe Thr Glu Leu Pro Arg  
195 200 205

Leu Glu Ala Leu Asp Leu Ser Tyr Asn Ser Gln Pro Phe Ser Met Lys  
210 215 220

Gly Ile Gly His Asn Phe Ser Phe Val Thr His Leu Ser Met Leu Gln  
225 230 235 240

Ser Leu Ser Leu Ala His Asn Asp Ile His Thr Arg Val Ser Ser His  
245 250 255

Leu Asn Ser Asn Ser Val Arg Phe Leu Asp Phe Ser Gly Asn Gly Met  
260 265 270

Gly Arg Met Trp Asp Glu Gly Gly Leu Tyr Leu His Phe Phe Gln Gly  
275 280 285

Leu Ser Gly Val Leu Lys Leu Asp Leu Ser Gln Asn Asn Leu His Ile  
290 295 300

Leu Arg Pro Gln Asn Leu Asp Asn Leu Pro Lys Ser Leu Lys Leu Leu  
305 310 315 320

Ser Leu Arg Asp Asn Tyr Leu Ser Phe Phe Asn Trp Thr Ser Leu Ser  
325 330 335

Phe Leu Pro Asn Leu Glu Val Leu Asp Leu Ala Gly Asn Gln Leu Lys  
340 345 350

Ala Leu Thr Asn Gly Thr Leu Pro Asn Gly Thr Leu Leu Gln Lys Leu  
355 360 365

Asp Val Ser Ser Asn Ser Ile Val Ser Val Ala Pro Gly Phe Phe Ser  
370 375 380

Lys Ala Lys Glu Leu Arg Glu Leu Asn Leu Ser Ala Asn Ala Leu Lys  
 385 390 395 400

Thr Val Asp His Ser Trp Phe Gly Pro Ile Val Met Asn Leu Thr Val  
 405 410 415

Leu Asp Val Arg Ser Asn Pro Leu His Cys Ala Cys Gly Ala Ala Phe  
 420 425 430

Val Asp Leu Leu Leu Glu Val Gln Thr Lys Val Pro Gly Leu Ala Asn  
 435 440 445

Gly Val Lys Cys Gly Ser Pro Gly Gln Leu Gln Gly Arg Ser Ile Phe  
 450 455 460

Ala Gln Asp Leu Arg Leu Cys Leu Asp Glu Val Leu Ser Trp Asp Cys  
 465 470 475 480

Phe Gly Leu Ser Leu Leu Ala Val Ala Val Gly Met Val Val Pro Ile  
 485 490 495

Leu His His Leu Cys Gly Trp Asp Val Trp Tyr Cys Phe His Leu Cys  
 500 505 510

Leu Ala Trp Leu Pro Leu Leu Ala Arg Ser Arg Arg Ser Ala Gln Thr  
 515 520 525

Leu Pro Tyr Asp Ala Phe Val Val Phe Asp Lys Ala Gln Ser Ala Val  
 530 535 540

Ala Asp Trp Val Tyr Asn Glu Leu Arg Val Arg Leu Glu Glu Arg Arg  
 545 550 555 560

Gly Arg Trp Ala Leu Arg Leu Cys Leu Glu Asp Arg Asp Trp Leu Pro  
 565 570 575

Gly Gln Thr Leu Phe Glu Asn Leu Trp Ala Ser Ile Tyr Gly Ser Arg  
 580 585 590

Lys Thr Leu Phe Val Leu Ala His Thr Asp Arg Val Ser Gly Leu Leu  
 595 600 605

Arg Thr Ser Phe Leu Leu Ala Gln Gln Arg Leu Leu Glu Asp Arg Lys  
 610 615 620

Asp Val Val Val Leu Val Ile Leu Arg Pro Asp Ala His Arg Ser Arg

625

630

635

640

Tyr Val Arg Leu Arg Gln Arg Leu Cys Arg Gln Ser Val Leu Phe Trp  
645 650 655

Pro Gln Gln Pro Asn Gly Gln Gly Gly Phe Trp Ala Gln Leu Ser Thr  
660 665 670

Ala Leu Thr Arg Asp Asn Arg His Phe Tyr Asn Gln Asn Phe Cys Arg  
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Gly Pro Thr Ala Glu  
690